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Admin. Law Judge	:	<u>Brian Korpics</u>
Witness	:	<u>Various</u>



PUBLIC ADVOCATES OFFICE
California Public Utilities Commission

ERRATA
to

**PREPARED TESTIMONY ON PACIFIC GAS AND ELECTRIC
COMPANY'S APPLICATION FOR ELECTRIC VEHICLE
CHARGE 2 PROGRAM**

**(Testimony originally served on March 2, 2022 was modified July 1, 2022
to include a Table of Contents and Title Pages in Appendices. No other
modifications were made.)**

(PUBLIC VERSION)

San Francisco, California
July 1, 2022

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Commissioner	<u>Rechtschaffen</u>
Admin. Law Judge	<u>Carolyn Sisto</u>
Witnesses	<u>Various</u>



**PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION**

**PREPARED TESTIMONY
ON
PACIFIC GAS AND ELECTRIC COMPANY'S
APPLICATION FOR ELECTRIC VEHICLE
CHARGE 2 PROGRAM**

San Francisco, California
March 2, 2022

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EXECUTIVE SUMMARY

Pursuant to the Assigned Commissioner's Scoping Memo and Ruling for Pacific Gas and Electric Company's (PG&E) Electric Vehicle Charge 2 Program (EVC 2),¹ the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) hereby submits its opening testimony in (A.) 21-10-010. Cal Advocates is the independent consumer advocate at the California Public Utilities Commission (Commission) with a statutory mandate to obtain the lowest possible rates for utility services consistent with reliable and safe service levels and the state's environmental goals on behalf of utility ratepayers.²

Since Cal Advocates is the only state entity in California charged with this responsibility, Cal Advocates plays a critical role in ensuring ratepayers are represented at the Commission on matters relating to ratepayers' costs and interests.

Arthur Tseng served as Cal Advocates' project coordinator for this testimony. Alan Bach, Danielle Dooley, David Matthews, James Sievers and Arthur Tseng served as Cal Advocates' witnesses. Their prepared qualifications are in Appendix A of this report. Legal counsel for this proceeding is David Gibbs.

**Table 1: List of Public Advocates Office's Witnesses
and Respective Chapters Witness is Sponsoring**

Chapter No.	Description	Witness
1	Program Cost	Alan Bach (Sections A, B, C, D, E, F) David Matthews (Section G) Danielle Dooley (Section H)
2	Program Scope	James Sievers
3	Program Implementation Details	Alan Bach (Sections A, B) David Matthews (Sections F, G, H) Arthur Tseng (Sections C, D, E)

¹ Assigned Commissioner's Scoping Memo and Ruling for Application (A.) 21-10-010, filed 01/05/22

² Public Utilities Code § 309.5(a).

1 The following Table 2 summarizes all of Cal Advocates' budget adjustments
2 compared to PG&E's testimony.

1

Table 2: Summary of Cal Advocates' Budget Adjustments*

PG&E Testimony Tables 7-1 and 7-3 Line Items	PG&E	Cal Advocates	Notes
BTM Project + PM Capital Costs	\$90.17	\$40.37	Due to cost adjustments made in Cal Advocates Chapter 1, Sections II.A-E, port adjustments made in Chapter 2, Sections II.A-C, and site characteristic changes made in Chapter 3, Section II.D.
BTM Project + PM Capital Contingency Costs	\$5.72	\$0.00	Cal Advocates Chapter 1, Section II.F.
Total EVC 2 Capital Costs	\$95.89	\$40.37	
Cancelled Projects	\$1.10		Cal Advocates Chapter 1, Section II.G.1.
Customer-Owned, BTM Rebate	\$126.47	\$43.11	Due to cost adjustments made in Cal Advocates Chapter 1, Sections II.A-E, port adjustments made in Chapter 2, Sections II.A-C, and site characteristic changes made in Chapter 3, Section II.D.
Customer-Owned O&M Rebate	\$0.01	\$0.06	Due to changes in allocations of ports per customer segment per Cal Advocates Chapter 2, Section II.A.
Equity Initiatives	\$4.48	\$4.85	Cal Advocates Chapter 3, Section II.F.
EV Savings Calculator	\$1.15		Cal Advocates Chapter 1, Section II.G.3.
EV Site Prioritization Tool	\$1.73	\$1.66	Cal Advocates Chapter 1, Section II.G.2.
Grid Visibility Tool	\$1.14	\$1.14	
Internal Labor (Customer Acquisition)	\$13.54	\$13.54	
Internal Labor (PMO + Project Delivery)	\$7.09	\$7.09	
IT	\$4.26	\$4.26	
ME&O	\$9.61	\$4.42	Cal Advocates Chapter 1, Section II.H.
Preliminary Design and ROM Process	\$3.71	\$0.00	Cal Advocates Chapter 1, Section II.F.
Program Evaluator	\$2.96	\$2.96	
Program Survey	\$0.15	\$0.00	Cal Advocates Chapter 3, Section II.H.
Site Host Data API	\$1.12	\$1.12	
Utility-Owned, BTM O&M	\$1.43	\$1.96	Due to changes in allocations of ports per customer segment per Cal Advocates Chapter 2, Sections II.A-C.
Total BTM + Program Expense Costs	\$179.94		

* Compare to PG&E's Testimony Tables 7-1 and 7-3 at pp. 7-3 to 7-4.

Acronyms: API – Application Programming Interface; BTM – Behind the Meter; O&M – Operations & Maintenance; PM – Project Management; PMO – Project Management Office; ROM – Rough Order of Magnitude

1 Cal Advocates makes the following recommendations regarding PG&E's
2 proposed EVC 2 program:

- 3 • Overall, Cal Advocates recommends PG&E's proposed EVC 2
4 budget should be reduced from \$276M to [REDACTED]. This is a
5 [REDACTED] savings for PG&E ratepayers. Excluding confidential
6 line items in Table 2 above, the budget should be reduced to
7 \$128.8M. This is a \$147.2M savings for PG&E ratepayers.
 - 8 ○ The Commission should reject PG&E's Level 2 (L2) costs
9 per port because they are unsupported.
 - 10 ○ The Commission should approve initial costs per port
11 consistent with the Commission's Decision for Southern
12 California Edison Company's (SCE) Charge Ready (CR)
13 2 program,³ which reduces the L2 cost per port from
14 \$10,000-\$16,500 in the EVC 2 application, to \$8,500-
15 \$16,000.
 - 16 ○ PG&E's New Construction Rebates should be reduced in
17 non-Assembly Bill (AB) 841 Prioritized Communities
18 (non-AB 841 PCs)⁴ from \$4,000 to \$2,000 per port.
 - 19 ○ While Cal Advocates recommends that the Commission
20 eliminate Direct Current Fast Chargers (DCFCs) from the
21 EVC 2 program in Chapter 2, if the Commission elects to
22 keep DCFCs in the program the Commission should reject
23 PG&E's DCFC cost per port of \$67,000 because it is
24 unsupported. Cal Advocates recommends that the DCFC
25 cost per port should not exceed \$50,500.
 - 26 ○ The Commission should approve declining rebates in
27 response to a maturing Electric Vehicle (EV) market.
28 Combined with Cal Advocates' other recommendations,
29 Cal Advocates recommends that the Commission reduce
30 PG&E's behind-the-meter (BTM) EV infrastructure costs
31 from \$90.2 million capital and \$126.5 million expense to
32 \$40.4 million capital and \$43.1 million expense,

³ Decision (D.) 20-08-045, the final Decision for A.18-06-015, SCE's CR2 program.

⁴ Assembly Bill (AB) 841, Ting, Statute 2020, Chapter 372. AB 841 PCs include the definition of DACs, but also includes communities that meet the definition of "low-income communities" as defined by paragraph (2) of subdivision (d) of Section 39713 of Health and Safety Code, is a community in which at least 75 percent of public school students in the project area are eligible to receive free or reduced-price meals under the National School Lunch Program, and/or is a community located on lands belonging to a federally recognized California Indian tribe.

1 respectively. The Commission should also increase
2 PG&E's customer-owned BTM expense from \$0.01
3 million to \$0.06 million, and increase PG&E's utility-
4 owned BTM operations & maintenance expense from \$1.4
5 million to \$2.0 million.

6 ○ The Commission should eliminate PG&E's requests for
7 project management, capital contingency, and preliminary
8 design costs, as these are already incorporated in the
9 Charge Ready 2 costs per port.

10 ○ The Commission should reduce PG&E's proposed
11 cancelled projects budget from \$1.1 million to [REDACTED]
12 by improving its method for estimating sunk costs related
13 to customer attrition.

14 ○ The Commission should reduce PG&E's proposed EV
15 Site Prioritization Tool budget from \$1.73 million to
16 \$1.656 million.

17 ○ The Commission should reduce PG&E's proposed EV
18 Savings Calculator budget from \$1.15 million to [REDACTED]
19 to better reflect the scope of proposed improvements.

20 ○ The Commission should reduce PG&E's proposed
21 Marketing Education and Outreach (ME&O) budget from
22 \$9.61M to \$4.43M.

23 • The Commission should require PG&E to prioritize EV charging
24 ports in Multi-Family Housing (MFH) in AB 841 Prioritized
25 Communities (AB 841 PCs).

26 • The Commission should prioritize public destination ports over
27 workplace ports in the EVC 2 program.

28 • The Commission should reduce the combined public destination
29 and workplace ports in the EVC 2 program.

30 • The Commission should deny the DCFC element of PG&E's
31 application.

32 • The Commission should require PG&E to explicitly exclude To-
33 The-Meter (TTM) costs from its new EVC 2 subaccount.

34 • The Commission should require PG&E to provide at least 10%
35 of the cost savings from Automated Load Management (ALM)
36 software to the site customer.

37 • The Commission should prohibit PG&E from testing Vehicle-to-
38 Anything (V2X) technology within the EVC 2 program.

- 1 • The Commission should limit BTM infrastructure ownership to
2 50 percent with no waiver for increases to the cap.
- 3 • Participating port installation sites should only receive incentives
4 for port installations matching the CALGreen code.
- 5 • PG&E should refine the criteria to access equity funding to
6 exclude MFH sites with median rent above Fair Market Rent.
- 7 • PG&E should increase its collaboration with Community Based
8 Organizations (CBOs) to ensure equity funding reaches
9 underserved communities.
- 10 • The Commission should direct PG&E to include greenhouse gas
11 (GHG) reduction data attributable to the EVC 2 program in
12 PG&E's program reports.
- 13 • The Commission should direct PG&E to expand upon the Senate
14 Bill (SB) 350⁵ report templates⁶ to indicate whether a site is
15 within a defined AB 841 PC and include additional MFH site
16 details.
- 17 • The Commission should direct PG&E to conduct a competitive
18 solicitation to select an evaluator for the EVC 2 program and
19 eliminate the Program Survey budget.

⁵ Senate Bill (SB) 350, de León, Statute 2015, Chapter 547.

⁶ SB 350 TE Reporting Requirements, *Transportation Electrification Activities Pursuant to Senate Bill 350*, California Public Utilities Commission, available at <https://www.cpuc.ca.gov/sb350te/>.

CHAPTER 1 : PROGRAM COST

(Witness: Alan Bach, David Matthews, Danielle Dooley)

I. INTRODUCTION

The purpose of this chapter is to provide analysis and recommendations regarding the costs of PG&E's proposed EVC 2 program.

II. DISCUSSION

A. The Commission should reject PG&E's cost per ports because they are incorrect and not fully supported by data from its EV Charge Network (EVCN)

PG&E's costs per port for EVC 2 are incorrect and are lacking adequate justification. PG&E implies that its EVC 2 L2 EV infrastructure costs per port are based on average costs from its EV Charge Network (EVCN) program.⁷ PG&E has separate cost per port estimates, ranging from approximately \$17,000 to \$22,000 per port, for different customer sites (workplace/public or multi-family housing [MFH]), and for sites that meet Assembly Bill (AB) 841 Prioritized Communities (AB 841 PCs) criteria. PG&E uses disadvantaged community (DAC) status from the EVCN program as a proxy for determining whether a site would be categorized as an AB 841 PC in EVC 2 and for calculating costs per port.⁸ EVCN includes both to-the-meter (TTM) and BTM costs, while EVC 2 includes only BTM costs.⁹ Therefore, PG&E applies a multiplier of 0.67-0.75 to EVCN total costs to capture only BTM costs.¹⁰ From this calculated BTM cost, PG&E subtracts a program participant's willingness to pay cost share for the EV infrastructure and rounds the values to the nearest thousand dollars.¹¹ This methodology

⁷ PG&E's EVC 2 Workpapers Supporting Chapter 7 (PG&E Workpapers), filed November 18, 2021, Atch. 02, Worksheet "Ch. 7 Per-Port Cost".

⁸ PG&E EVC 2 Application (A.21-10-010) Prepared Testimony (PG&E Testimony), pp. 3-15 line 27 to 3-17 line 12 states that PG&E uses its ports installed in disadvantaged communities (DACs) as a proxy for cost of ports that would be installed in AB 841 PCs.

⁹ PG&E Testimony, pp. 4-7, line 23, to pp. 4-8, line 4.

¹⁰ PG&E Workpapers, Atch 02, worksheet "Ch. 7 Per-Port Cost".

¹¹ PG&E Workpapers, Ach 02, worksheet "Ch. 7 Per-Port Cost".

1 reduces the cost per port BTM contribution by PG&E from the EVCN baseline to
2 \$10,000-\$12,000 per port depending on customer segment.¹²

3 PG&E's claim that its EVC 2 cost per port are based on EVCN averages is not
4 correct for all customer segments. For AB 841 PC MFH customers, PG&E's cost per
5 port of \$22,000, including TTM and Electric Vehicle Supply Equipment (EVSE) costs
6 which is equal to the cost of approximately [REDACTED] most expensive port for
7 this customer segment.¹³ The average AB 841 PC MFH per port cost is [REDACTED], which
8 is [REDACTED] than PG&E claims.¹⁴ PG&E inaccurately
9 justifies the \$22,000 per port cost stating that it would [REDACTED] of EVCN DAC
10 sites and would therefore also include EVC 2 AB 841 PC sites.¹⁵ This line of
11 justification is unfounded. A budget of \$1 million per port would also [REDACTED]
12 of EVCN DAC sites but it would not be a prudent use of ratepayer funds.

13 Furthermore, PG&E's methodology that uses estimated port costs from EVCN
14 DAC sites as a proxy for port costs for EVC 2 AB 841 PC sites overestimates EVC 2 cost
15 estimates. The definition of an AB 841 PC includes all sites that are defined as being
16 within a DAC, but AB 841 PCs are not limited to DACs. PG&E experienced lower costs
17 at non-DAC sites compared to DAC sites in the EVCN program and EVC 2 sites could
18 be in an AB 841 PC but not be in a DAC.¹⁶ Such a site should have costs reflective of
19 PG&E's non-DAC cost per port, rather than PG&E's higher DAC cost per port.

¹² PG&E Testimony, p. 3-3, Table 3-1.

¹³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF, worksheet "Q2 – Part II – CONF". Note that unlike for the other customer segments, PG&E includes the EVSE cost into its MFH in AB 841 PC cost per port. This coincides with PG&E's proposal in EVC 2, to cover the EVSE costs for MFHs in AB 841 PCs, and not for other customer segments.

¹⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF, worksheet "Q2 – Part II – CONF". Note that unlike for the other customer segments, PG&E includes the EVSE cost into its MFH in AB 841 PC cost per port. This coincides with PG&E's proposal in EVC 2, to cover the EVSE costs for MFHs in AB 841 PCs, and not for other customer segments.

¹⁵ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF, worksheet "Q2 – Part II – CONF".

¹⁶ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01

(continued on next page)

1 Moreover, basing per port costs on historic costs alone is not an adequate cost
2 containment measure by itself. In D.21-07-028, the Commission ordered the investor-
3 owned utilities (IOUs) to ensure that cost estimates for EV infrastructure installations
4 incorporate lessons learned from previous programs.¹⁷ One of the lessons PG&E states it
5 has learned from EVCN is that better site selection will reduce costs. PG&E appears to
6 implement this lesson learned in EVC 2, stating: “The EV Fast Charge [2] application
7 includes more complex questions than EVCN; these questions address site conditions and
8 utilization potential, among other items. By obtaining more information from applicants
9 up-front, PG&E can more effectively prioritize cost-effective sites that have higher
10 potential for future utilization.”¹⁸ However, PG&E did not quantify the impacts of this
11 lesson learned in reducing its cost per port.

12 Cal Advocates estimates the impact of this lesson learned by 1) projecting that
13 EVC 2 should be able to avoid the 10% highest cost ports and 2) removing these higher
14 costs estimates from the average cost per port. If this recommendation is applied with no
15 other adjustments to PG&E’s cost per port, this adjustment would reduce PG&E’s BTM
16 cost per port by between [REDACTED], depending on the customer segment.¹⁹ Cal
17 Advocates finds this adjustment appropriate for several reasons. First, both PG&E’s
18 EVCN and EV Fast Charge programs received applications for about four times more

CONF, worksheet “Q2 – Part I – CONF”. Cal Advocates makes no assertions here of whether costs in non-DACs, and costs in non-AB 841 PCs, should be lower than those in DACs and/or AB 841 PCs, especially when controlling for other variables such as ports per site. Cal Advocates merely points out that PG&E has historically experienced higher costs per port at DAC sites.

¹⁷ D.21-07-028, *Decision setting near-term priorities for transportation electrification investments by the electrical corporations*, July 21, 2021 (D.21-07-028), p. 27, issued in Rulemaking (R.) 18-12-006, the *Development of Rates and Infrastructure for Vehicle Electrification (DRIVE)* OIR.

¹⁸ PG&E Testimony, p. 2-8, lines 16-18.

¹⁹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF. To compute the effects of this recommendations, Cal Advocates computed the \$ per port cost for each site, sorted each customer segment by \$ per port, and removed sites (i.e., rows in the worksheets) until only 90% of ports for each customer segment remained. In the case of a fractional site, Cal Advocates treated the site as if it had only a fraction of its ports installed, such that the number of ports remaining exactly equals 90% of the total population.

ports than PG&E could install in the programs.²⁰ Assuming EVC 2 has similar demand, PG&E will have enough applications in the EVC 2 program that it can be selective in choosing lower cost applicant sites. Secondly, the cost savings from this lesson learned is only one of many learnings from EVCN and EV Fast Charge that result in cost savings in the EVC 2 program. Therefore, even if PG&E only realizes a fraction of the [REDACTED] per port cost savings that Cal Advocates estimates from site selection, the combination of site selection, a more robust automated load management (ALM) proposal in EVC 2, or other lessons learned should allow PG&E to meet the full [REDACTED] cost per port savings. Cal Advocates incorporates the cost savings from this lesson learned in its next section, where it computes its overall L2 cost per port recommendation for EVC 2 in Sections II.B-E below.

B. The Commission should approve a cost per port budget in line with SCE's Charge Ready 2 program, adjusted for programmatic changes

PG&E's cost per port of \$17,000-\$22,000 prior to adjustments to remove TTM infrastructure and split cost sharing with the program participant is significantly higher than the cost per port in other IOU EV programs.²¹ In Southern California Edison Company's (SCE) Charge Ready Pilot Program (CR Pilot), SCE installed ports similar to PG&E's L2 ports at a cost of \$13,374 per port for the entirety of TTM, BTM and EVSE infrastructure.²² In D.20-08-045, the Decision approving SCE's Charge Ready 2 (CR 2) program, the Commission approved a higher average cost per port of \$15,000, in order to give SCE a buffer in case of possible cost increases which might have occurred in the time between when SCE implemented its CR Pilot and approval of CR 2.²³ In D.21-07-

²⁰ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q06a.

²¹ PG&E Workpapers, Atch 02, worksheet "Ch. 7 Per-Port Cost".

²² D.20-08-045, *Decision Authorizing Southern California Edison Company's Charge Ready 2 Infrastructure and Market Education Programs*, September 2, 2020 (D.20-08-045), p. 4; issued in (A.) 18-06-015.

²³ D.20-08-045, Ordering Paragraph (OP) 5, p. 144.

1 028, the Commission directed that any extensions to existing IOU Transportation
2 Electrification (TE) programs, such as EVC 2, should have costs in line with recent
3 Commission TE Decisions.²⁴ PG&E, therefore, should ensure that its EVC 2 costs are in
4 line, with adjustments, to the comparable SCE CR 2 program, as both programs install
5 make-ready L2 EV charging infrastructure. If PG&E is installing the same type of
6 infrastructure as SCE, but has higher costs per port, then PG&E is not efficiently utilizing
7 ratepayer funds and is out of compliance with D.21-07-028.

8 Cal Advocates notes that in San Diego Gas & Electric Company's (SDG&E's)
9 Power Your Drive 2 (PYD 2) program, the Commission approved a cost per port of
10 \$15,000, with the ability to request recovery of up to \$18,131/port, subject to a
11 reasonableness review.²⁵ The \$18,131 estimate was based on SDG&E's internal
12 calculations in its opening comments to the PYD 2 Proposed Decision²⁶ and assumes that
13 all sites will need a new service line and transformer.^{27,28} This is an excessive
14 assumption, as SCE's CR 2 workpapers assumes that only 40% of sites installing L2
15 EVSEs will need a new service or transformer.²⁹ Therefore, Cal Advocates does not
16 recommend that the Commission similarly allow PG&E the ability to request recovery up
17 to \$18,131/port but concludes \$15,000/port is reasonable. Cal Advocates recommends
18 using the \$15,000 per port approved in SCE's CR 2 for the EVC 2 program with the

²⁴ D.21-07-028, p. 27.

²⁵ D.21-04-014, *Decision authorizing San Diego Gas & Electric Company's Power Your Drive Extension electric vehicle charging program*, April 19, 2021 (D.21-04-014), OP 6 at p. 98; issued in application (A.) 19-10-012, SDG&E's Power Your Drive 2 program.

²⁶ D.21-04-014 p. 42, referencing SDG&E's Opening Comments to the Proposed Decision, p. 5.

²⁷ D.21-04-014 p. 42, referencing SDG&E's Opening Comments to the Proposed Decision, p. 5.

²⁸ *Comments of San Diego Gas & Electric Company (902 E) On Proposed Decision [for Application of San Diego Gas & Electric Company (U 902 E) to Extend and Modify the Power Your Drive Pilot Approved by Decision 16-01-045]*, filed March 8, 2021, p. 6; issued in A.19-10-012, SDG&E's Power Your Drive 2 program.

²⁹ SCE's *Charge Ready 2 Master Workpaper* ("CR 2 Master Workpaper"), worksheet "Site Example Revised", lines 13-32; issued in (A.) 18-06-015, SCE's CR 2 program.

1 following adjustments to ensure that the rebate calculated from the cost per port reflects
2 the programmatic changes in EVC 2, and lessons learned in EVCN:

- 3 1. The \$15,000/port in SCE's CR 2 covers all TTM, BTM, and
4 EVSE portion of costs.³⁰ Except for MFH in AB 841 PCs, EVC
5 2 will not cover the EVSE costs. Therefore, the EVSE cost of
6 \$1,656/port is removed from the estimate, reducing the cost per
7 port to \$13,344.³¹ Cal Advocates extracts the BTM costs, and
8 recalculates the EVSE costs for MFH in AB 841 PCs below.
- 9 2. The cost per port in SCE's CR 2 applies to all customer
10 segments, whereas in EVC 2, PG&E developed specific cost per
11 port estimates for different customer segments.³² Moreover, in
12 Chapter 3, Section II.D below, Cal Advocates recommends that
13 PG&E limit the number of ports it installs at a site to a certain
14 number of parking spaces at the site in order to avoid
15 underutilized assets. This limit could reduce PG&E's ability to
16 install a high number of ports at a site. Because PG&E
17 experienced higher costs at sites with lower port counts,³³ Cal
18 Advocates' proposed port limitation recommendation could
19 incidentally increase the cost per port in EVC 2. To account for
20 the effect of Cal Advocate's port limitation recommendation,
21 which could increase our cost per port estimate, Cal Advocates
22 determines the percent cost per port increase between ports
23 installed at EVCN sites with less than 20 ports for each customer
24 segment versus the cost per port for all sites in PG&E's EVCN.³⁴
25 Cal Advocates then applied this percent cost increase to the
26 \$13,344/port authorized in SCE's CR 2.

³⁰ D.20-08-045, Appendix A, Table 1, shows cost elements for utility side costs (aka TTM), customer side costs (aka BTM), and rebates for EVSEs.

³¹ E.g., see PG&E Testimony, p. 3-3, Table 3-1.

³² PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF.

³³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF.

³⁴ Since the comparison is to determine a customer segment specific costs per port at smaller sites to a generalized, non-customer segment specific cost per port, the "denominator" in this case is not differentiated by customer segment. Less than 20 ports were used as the cutoff because in PG&E's Testimony p. 2-6, lines 29-31 states that PG&E plans to target sites with 20 or more sites to minimize costs. Since sites with 20 or more ports would minimize costs, to approximate the effect of a recommendation that would increase costs by reducing ports per site Cal Advocates uses a less than 20-port per site cutoff.

- 1 3. As mentioned in Section II.A. below, PG&E should achieve cost
2 savings through better site selection, which should reduce costs
3 from historic values. Cal Advocates thus excludes the top 10%
4 highest cost per port sites with 20 or fewer ports in its
5 Adjustment 2. The combined effect of Adjustments 2 and 3
6 increases PG&E's cost per port by 5-38%, depending on
7 customer segment.
- 8 4. SCE's Charge Ready 2 Program was approved in 2020.³⁵ Cal
9 Advocates uses a 2.7% escalator to convert SCE's \$15,000/port
10 in 2021 dollars.³⁶ Then, Cal Advocates applies the same
11 escalators that PG&E used to escalate 2021 dollars to 2024-2028
12 dollars,^{37,38} to account for the fact that EVC 2 will install ports
13 from 2024 to 2028.
- 14 5. EVC 2 covers only the BTM make-ready portion of costs within
15 the EVC 2 program, whereas the \$13,344 per port for the non-
16 EVSE portion of SCE's CR 2 program covers both TTM and
17 BTM costs.³⁹ To isolate the BTM cost, Cal Advocates utilizes
18 PG&E's methodology of multiplying the sum of the TTM and
19 BTM costs per port by the percent of costs that are BTM for each
20 customer segment, which is 67-75% depending on the site.⁴⁰
- 21 6. As mentioned in Chapter 1, Section II.B above, PG&E has
22 identified a program participant willingness to pay cost share for
23 the charging infrastructure.⁴¹ Cal Advocates subtracts the
24 customer willingness to pay from the cost per port to determine

³⁵ D.20-08-045.

³⁶ PG&E Workpapers, Atch 02, worksheet "Ch. 7 – Escalation Rates", lines 1-14. Based on the highest escalation rate used by PG&E from 2022 to 2029 for capital electric plant.

³⁷ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08 Atch 01, worksheet "Q8.ii".

³⁸ Cal Advocates-PGE-A2110010-001, Q12 Atch 01, worksheet "Q12.b". Based on the escalation adjustments PG&E utilized for each customer segment.

³⁹ PG&E Testimony, pp. 4-7 to 4-8.

⁴⁰ Note that D.20-08-045, Appendix A, Table 1, splits some but not all costs into utility side (i.e., TTM), and customer side (i.e., BTM) costs. Cal Advocates elects to not use these costs to determine the percent of costs that are BTM, and instead elects to use PG&E's percentages. This is because it is unclear whether the cost categories in D.20-08-045 not split between utility and customer side costs, "non-labor" and labor, should be split at the same proportion as the costs that are split between utility and customer side costs.

⁴¹ PG&E Testimony, p. 3-14, line 1 to p. 3-18, line 9.

PG&E's EVC 2 cost contribution, as PG&E did with its own proposal.

Mathematically, Cal Advocates' cost per port recommendation for each customer segment can be expressed as:

$$CPP_{EVC\ 2,i} = \left(CPP_{CR2} * ESC * \frac{CPP_{EVCN_{i,SS,<20\ ports}}}{CPP_{EVCN_i}} \right) * \%_{BTM,i} - WTP_i$$

Where:

- $CPP_{EVC\ 2,i}$ is Cal Advocates' recommended cost per port for a given customer segment "i", and ranges from \$8,500 to \$14,000 per port;
- $CPP_{CR2,i}$ is the total capital cost per port (including TTM infrastructure) in CR 2 and equals \$13,344;
- ESC is an escalation factor of 1.027;
- $CPP_{EVCN_{i,SS,<20\ ports}}$ is the cost per port in EVCN for a given EVCN customer segment that have less than 20 ports, and, through site selection, have the 10% most expensive ports removed;
- CPP_{EVCN_i} is the cost per port for all ports for a given customer segment in EVCN;
- $\%_{BTM,i}$ is the percent of costs that are BTM for the given customer segment and is approximately 70% for all customer segments; and
- WTP_i is the willingness to pay, which ranges from \$0 to \$2,500 depending on customer segment, per PG&E's own assumptions.⁴²

For MFH in AB 841 PCs, PG&E additionally proposes to cover the cost of EVSEs.⁴³ Cal Advocates adds \$2,183/port to the cost for each MFH in AB 841 PC port, based on the EVSE cost per port for MFH DACs in EVCN that are at sites with less than 20 ports per site, and that are not in the top 10% most expensive ports.⁴⁴

⁴² PG&E Workpapers, Atch. 02, worksheet "Ch. 7 Per-Port Cost", lines 3-12.

⁴³ PG&E Testimony, p. 3-15, lines 25-27.

⁴⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF, removing the ports with the top 10% highest cost overall, not top 10% highest EVSE costing ports.

Cal Advocates' methodology produces the following cost per port, rounded to the nearest \$500, in Table 3. Cal Advocates recommends using these values to replace the respective maximum \$/port values shown in PG&E's testimony Chapter 3, Table 3-1, but maintaining the same % (e.g., 90% for a MFH in a non-AB 841 PC) cost contribution proposed by PG&E.

**Table 3: Cal Advocates Recommended L2
Rebate Levels Per Port at Program Inception**

Customer Segment	PG&E, Program Inception	Cal Advocates, Program Inception
Multi-family Housing Retrofit, AB 841 PC	100%+EVSE (\$16,500 soft cap); + O&M	100%+EVSE, up to \$16,000 total; + O&M
Multi-family Housing Retrofit, Non-AB 841 PC	90%, up to \$12,000	90%, up to \$9,500
Multi-family Housing New Construction, AB 841 PC	100%, up to \$4,000	100%, up to \$4,000
Multi-family Housing New Construction, Non-AB 841 PC	100%, up to \$4,000	100%, up to \$2,000
Workplace/Public, AB 841 PC	90%, up to \$12,000	90%, up to \$8,500
Workplace/Public, Non-AB 841 PC	80%, up to \$10,000	80%, up to \$8,500

The methodology utilized in this testimony by Cal Advocates is similar to the methodology utilized by PG&E to calculate cost per port in EVC 2. Unlike the methodology utilized by PG&E, however, Cal Advocates bases the costs per port on the values authorized in D.20-08-045, the Decision approving SCE's CR 2 program,⁴⁵ rather than PG&E's recorded EVCN costs. Cal Advocates adjusts the cost per port based on forecasted differences in port distribution in PG&E's EVC 2 versus SCE's CR 2 (Adjustments 2 and 3). The net effect of including Adjustments 2 and 3 in the above

⁴⁵ D.20-08-045.

1 adjustments increases the cost per port, so Cal Advocates' proposal gives PG&E a higher
2 cost per port than if Cal Advocates had done a straight conversion of CR 2 costs to EVC
3 2. Because Cal Advocates' recommended costs per port are higher than if Cal Advocates
4 had done a straight conversion of CR 2 costs to EVC 2, and CR 2 involved a past
5 Commission Decision, Cal Advocates' adjustments are no more stringent than the
6 Commission's own directives that program extensions such as EVC 2 should have costs
7 in line with past Commission Decisions.⁴⁶

8 **C. The Commission should reduce PG&E's new construction**
9 **rebates in non-AB 841 PCs to \$2,000 per port**

10 Cal Advocates recommends that the Commission reduce PG&E's EVC 2 new
11 construction rebates for MFH in non-AB 841 PCs from \$4,000 to \$2,000 to align with
12 prior Commission directives. In D.21-07-028, the Commission's Decision for
13 transportation electrification near-term priorities, the Commission defined requirements
14 for IOU transportation electrification programs filed via advice letter. One such
15 requirement stated that rebates for new construction EVSEs in non-underserved
16 communities (i.e., non-AB 841 PCs) should not exceed 50%, of costs, or approximately
17 \$2,000 per port, compared to 100% of costs for ports installed in AB 841 PCs.⁴⁷

18 Cal Advocates recommends that the Commission also reduce EVC 2 new
19 construction rebates for MFH in non-AB 841 PCs to \$2,000 per port but keep the rebate
20 for MFH in AB 841 PCs at PG&E's proposed \$4,000 per port. In D.21-027-028, the
21 Commission did not extend the requirements for new construction rebates to programs
22 such as EVC 2 that are filed outside of advice letters. However, reducing the rebate for
23 non-AB 841 PCs will reduce ratepayer impact from the EVC 2 program, while focusing
24 rebates on the customer segment that needs the rebates most – MFHs in AB 841 PCs.

25 Moreover, reducing the new construction rebate to \$2,000 per port should not
26 impede participation for new construction MFHs in non-AB 841 PCs. A new

⁴⁶ D.21-07-028, p. 27.

⁴⁷ D.21-07-028, OP 6 at pp. 81-82.

1 construction MFH project in a non-AB 841 PC receiving a \$2,000 per port rebate would
2 pay a cost per port that is less than the customer contribution in an existing MFH in a
3 non-AB 841 PC in EVC 2.^{48,49} Therefore, Cal Advocates' recommendation for a \$2,000
4 per port new construction rebate for MFHs in non-AB 841 PCs is reasonable because it
5 maintains costs to the program participant at levels less than costs for other customer
6 segments participating in the program.

7 **D. The Commission should require PG&E to reduce DCFC rebate**
8 **amounts, if the Commission approves DCFCs in PG&E's EVC 2**

9 PG&E's proposed rebate amount is not supported by adequate data. PG&E
10 proposes to provide a rebate of up to \$67,000, or 90% of the cost for a DCFC port.⁵⁰
11 PG&E derives this rebate amount by taking a \$111,000 estimate for both TTM and BTM
12 costs, multiplying by the percent of costs that are BTM to get a BTM cost of
13 approximately \$75,000, and then multiplying by PG&E's proposed 90% contribution to
14 the \$75,000 costs and rounding to calculate a rebate amount of \$67,000.⁵¹

15 [REDACTED]

16 [REDACTED]⁵² [REDACTED]

17 [REDACTED]

18 [REDACTED] As mentioned in Chapter 2,

19 Section II.C below, Cal Advocates recommends removing DCFCs from EVC 2 entirely.

⁴⁸ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q02, Atch 01 CONF has an average EVSE + installation cost exceeding \$2,000 per port.

⁴⁹ PG&E Testimony, p. 3-3, Table 3-1. The \$4,000 per port PG&E currently proposes would approximately cover all new construction EVSE + installation costs. Under Cal Advocates' proposal, the new construction site would instead pay approximately $\$4,000 - \$2,000 = \$2,000$, whereas an existing MFH in a non-AB 841 PC would have to pay the cost of an EVSE + installation (which per Cal Advocates' previous footnote exceeds \$2,000), plus an additional 10% of BTM costs.

⁵⁰ PG&E Testimony, p. 3-3, Table 3-1.

⁵¹ PG&E Workpapers, Atch. 02, worksheet "Ch. 7 Per-Port Cost", lines 4 & 10.

⁵² PG&E Workpapers, Atch. 02, worksheet "Ch. 7 Per-Port Cost".

⁵³ [REDACTED]

1 However, if the Commission decides to retain DCFCs in PG&E's EVC 2 proposal, Cal
2 Advocates recommends [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED],⁵⁶ and after multiplying the cost by 90% based on cost
13 sharing with the site and rounding, the rebate should be \$55,000.

14 Moreover, PG&E does not provide, nor does it claim that it has evidence to
15 support, that a 90% rebate is necessary to incentivize installation of DCFC ports. Instead,
16 PG&E states that its 90% DCFC rebate percentage was set at the same level as PG&E's
17 proposed workplace rebate levels, for the sake of "simplicity".⁵⁷ PG&E states that it will
18 adjust its DCFC rates in the future via an advice letter, but a mid-program rebate level
19 adjustment is not adequate and does not ensure prudent use of ratepayer funds. While
20 PG&E has proposed a mechanism to adjust its DCFC rebate as necessary, there is a

⁵⁴ [REDACTED]

⁵⁵ [REDACTED]

⁵⁶ [REDACTED]

⁵⁷ PG&E Testimony, p. 3-18, line 5.

1 greater risk to ratepayers of setting rebates initially too high, compared to setting them
2 too low. If rebates are initially set too high, ratepayers will be pay more than is necessary
3 to incentivize DCFC infrastructure. If rebates are too low, program participation may be
4 stifled, but any ratepayer dollars expended will have been used more prudently.

5 Cal Advocates recommends reducing PG&E's rebate from 90% of costs (\$55,000
6 (after rounding to nearest \$500)) to 80% of costs (\$50,500). This small reduction in
7 PG&E's initial rebate should also be combined with Cal Advocates' recommendation to
8 reduce EVC 2 per port rebates over time, as discussed in more detail below.

9 **E. The Commission should require PG&E to have declining rebates**
10 **in response to a maturing EV market**

11 The Commission should authorize a tiered rebate program that provides smaller
12 rebates as uptake in EVC 2 increases. PG&E states that its rebate amounts for L2 ports
13 for MFH in AB 841 PCs are based on three sources: 1) EV charging infrastructure
14 willingness to pay data from an Ecology Action report, 2) responses from a PG&E in-
15 house survey, and 3) willingness to pay data from EVCN.⁵⁸ Cal Advocates does not
16 currently contest PG&E's willingness to pay data in terms of its limitations.⁵⁹ However,
17 PG&E proposes to deploy EVC 2 ports from 2024 to 2028 and Cal Advocates anticipates
18 that the market landscape for EVs will have shifted significantly by that time.⁶⁰ For
19 example, Volkswagen has stated that the cost of new EVs could reach price parity with
20 internal combustion engines (ICE) vehicles in four years.⁶¹ Similarly, Bloomberg New
21 Energy Finance expects that EVs will reach price parity with ICE vehicles between 2025-

⁵⁸ PG&E Testimony, p. 3-16, lines 11-24.

⁵⁹ That is, in terms of its applicability to customer willingness to pay for EV charging infrastructure in 2021, being a form of stated rather than revealed preference, and accounting for the small and possibly non-representative population of the survey respondents.

⁶⁰ PG&E Workpapers, Ach. 02, worksheet "Ch. 7 - Port Deployment".

⁶¹ Tucker, Sean, *VW: EVs Will Reach Price Parity with Gasoline Cars in Just 4 Years*. Kelley Blue Book, July 14, 2021, Accessed February 15, 2022. <https://www.kbb.com/car-news/vw-evs-will-reach-price-parity-with-gasoline-cars-in-just-4-years/>.

1 2028.⁶² Widespread EV adoption may be encouraged by the drop in EV prices which
2 could increase a customer’s willingness to pay for EV infrastructure.

3 In D.21-07-028, the Commission stated that the legislative intent of utility
4 investment in TE is to “...attract[s] private investment in EV charging services.”⁶³ The
5 Commission set forth requirements for advice letter filings for near-term priority TE
6 programs, stating that such programs will be evaluated based on, among other criteria,
7 “...demonstrat[ing] efforts to develop a private TE charging market and lead to a
8 reduction in market dependence on ratepayer funding.”⁶⁴ The Commission does not
9 explicitly require that extensions to existing TE programs filed via application should
10 also reduce market dependence on ratepayer funding, but it did require the IOUs to
11 incorporate lessons learned to maximize ratepayer benefits and reduce costs.⁶⁵ To that
12 end, PG&E should incorporate reductions in rebates over the lifespan of EVC 2 to reduce
13 dependence on ratepayer funding as the EV market matures, which would help reduce
14 ratepayer costs.

15 In its February 2019 comments on the DRIVE Order Instituting Rulemaking
16 (DRIVE OIR), The Utility Reform Network (TURN) proposed a process by which
17 ratepayer subsidies for EV infrastructure decrease over time as the EV market matures
18 and certain milestones are met.⁶⁶ TURN compared its proposal to a similar reduction in
19 incentives implemented within the California Solar Initiative.⁶⁷ Cal Advocates agreed

⁶² McKerracher, Colin, *The EV Price Gap Narrows*. Bloomberg New Energy Finance, June 25, 2021; Access February 15, 2022. <https://about.bnef.com/blog/the-ev-price-gap-narrows/#:~:text=BNEF%20expects%20battery%20prices%20to,from%20%24137%2FkWh%20in%202020.&text=Even%20pushing%20these%20up%2C%20EVs,in%20the%20most%20optimistic%20scenari>o.

⁶³ D.21-07-028, Conclusion of Law (CoL), 1.

⁶⁴ D.21-07-028, p. 38.

⁶⁵ D.21-07-028, p. 27.

⁶⁶ *Opening Comments of The Utility Reform Network on the Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification and Closing Rulemaking 13-11-007*, pp. 3-4, dated February 11, 2019 (TURN OIR Comments), filed in (R.) 18-12-006, DRIVE OIR.

⁶⁷ TURN OIR Comments, p. 3.

with TURN's approach and recommends a declining cost share structure for EVC 2, due to the expected increased maturity of the EV market between program launch and 2028.⁶⁸ Specifically, Cal Advocates proposes that, for all customer segments except for MFH in AB 841 PCs and MFH new construction (whether located in or out of AB 841 PCs), PG&E should take its estimated number of ports for each customer segment and divide the ports into 6 tranches. The first 5 tranches would each contain 20% of the ports that PG&E anticipates it will deploy in the customer segment, whereas the last tranche would effectively be an overflow tranche. In each subsequent tranche, PG&E should reduce the maximum incentive level by 10% of the initial incentive level compared to the previous tranche. PG&E could determine site qualifications for each tranche based on the date of program participant application to the program.

Table 4 below provides an example for declining rebates based on the number of ports installed. Table 4 is meant to be illustrative, and the numbers presented are not Cal Advocates' recommendation for any specific customer segment.

Table 4: Illustrative Example of Cal Advocates' Declining Rebate Recommendation for a 1,000 Port Target

Ports Installed	Rebate
0-200 (0-20%)	\$8,000
201-400 (20.1-40%)	\$7,200
401-600 (40.1-60%)	\$6,400
601-800 (60.1-80%)	\$5,600
801-1000 (80.1-100%)	\$4,800
1001+ (100.1%+)	\$4,000

⁶⁸ Based on the reducing EV price costs anticipated by Volkswagen in *VW: EVs Will Reach Price Parity with Gasoline Cars in Just 4 Years* and Bloomberg New Energy Finance *The EV Price Gap Narrows*, referenced above.

1 Since Cal Advocates' proposal is based on the number of ports deployed for each
2 customer segment and not by year it has a built-in mechanism to correct for uncertainties
3 in tranche size and declining rebate amount. If there is less uptake in a customer
4 segment, the initial incentive tranches will take longer to exhaust, and therefore PG&E
5 will maintain a higher incentive for that customer segment for a longer period. If there is
6 rapid uptake, the initial incentive tranches will be depleted and PG&E will provide a
7 lower incentive for further projects, which will help reduce ratepayer burden.

8 To implement this declining rebate structure, PG&E should be authorized a budget
9 based on 80% of the initial incentive level for each customer segment – which is the
10 average percentage of all tranches besides the overflow tranche (average of 100%, 90%,
11 80%, 70%, and 60%). Authorizing a budget based on 80% of the initial incentive level
12 does not create an appreciable risk that PG&E will be authorized a budget that is too low.
13 If PG&E deploys more ports compared to its estimate in one segment, it will deploy all
14 additional ports at the 50% of initial incentive tranche. In comparison, if PG&E under-
15 deploys in a segment, it will not deplete all the funding in the fifth (60% of initial
16 funding) tranche (and possibly a higher percentage tranche if PG&E greatly under
17 deploys in the customer segment). If the initial rebates for the two customer segments are
18 similar, the 50% of initial incentive rebates of the over-deployed segment should be
19 smaller or comparable to the 60% of initial incentive of the under deployed segment.
20 Therefore, uncertainties in port deployments by customer segments will more likely
21 provide PG&E a slight surplus of funds, rather than a deficit. Moreover, Cal Advocates'
22 recommended rebate levels are in-line with local programs that have partnered with the
23 California Energy Commission's (CEC) Cal EV Infrastructure Project (CALeVIP), with
24 over half of those programs offering less than \$6,000 per L2 port.⁶⁹ Cal Advocates'

⁶⁹ *Find a Project*, CALeVIP, Implemented by CSE for the California Energy Commission, accessed February 15, 2022. <https://calevip.org/find-project>. As of the date of access, February 15, 2022, seven of the twelve L2 programs listed offer a rebate up to but not exceeding \$6,000 per port. Individual rebates per customer segment may also be lower than \$6,000 per port. Note that while 13 programs are listed as of February 15, 2022, one of the programs is exclusive to DCFC.

rebate proposal averages higher than \$6,000 per port for all customer segments, which validates that Cal Advocates' rebate levels are reasonable.

Table 5 below summarizes Cal Advocates' rebate recommendations for this section, compared to PG&E's proposal in its testimony at Table 3-1.

**Table 5: Cal Advocates vs. PG&E Rebate Recommendations
for Behind The Meter Infrastructure Rebates**

Customer Segment	PG&E, Program Inception	Cal Advocates, Program Inception	PG&E, Deployment Beyond Estimate	Cal Advocates, Deployment Beyond Estimate
Multi-Family Housing Retrofit, AB 841 PC	100% + EVSE (\$16,500 soft cap); + O&M	100% + EVSE, up to \$16,000 total; + O&M	100% + EVSE (\$16,500 soft cap); + O&M	100% + EVSE, up to \$16,000 total; + O&M
Multi-Family Housing Retrofit, Non-AB 841 PC	90%, up to \$12,000	90%, up to \$9,500	90%, up to \$12,000	45%, up to \$4,750
Multi-Family Housing New Construction, AB 841 PC	100%, up to \$4,000	100%, up to \$4,000	100%, up to \$4,000	100%, up to \$4,000
Multi-Family Housing New Construction, Non-AB 841 PC	100%, up to \$4,000	100%, up to \$2,000	100%, up to \$4,000	100%, up to \$2,000
Workplace/Public, AB 841 PC	90%, up to \$12,000	90%, up to \$8,500	90%, up to \$12,000	45%, up to \$4,250
Workplace/Public, Non-AB 841 PC	80%, up to \$10,000	80%, up to \$8,500	80%, up to \$10,000	80%, up to \$4,250
DCFC, AB 841 PC	90%, up to \$67,000	Excluded; if included 80%, up to \$50,500	90%, up to \$67,000	Excluded; if included 40%, up to \$25,250

If the declining rebate process is layered on top of Cal Advocates' other recommendations in Chapter 1, Sections II.B - D, Chapter 2, Sections II.A-D, and Chapter 3, Section II.D, the tiered tranche rebate structure would reduce PG&E's BTM EV infrastructure costs from \$90.2 million capital and \$126.5 million expense to \$40.4 million capital and \$43.1 million expense. The combined recommendations would also increase PG&E's customer-owned BTM expense from \$0.01 million to \$0.06 million, and increase PG&E's utility-owned BTM operations & maintenance expense from \$1.4

million to \$2.0 million, due to increasing the number of ports that are MFHs in AB 841 PCs, per Chapter 2, Section II.A. Table 6 below summarizes the changes compared to PG&E's proposal.

Table 6: Line-Item EV Infrastructure Cost Comparison Between PG&E's and Cal Advocates Proposal (\$000,000's)

PG&E Testimony Table & Related Line Item	PG&E	Cal Advocates	Notes
Table 7-1: BTM Project + PM Capital Costs	\$90.17	\$40.37	Due to cost adjustments made in Cal Advocates Chapter 1, Sections II.A-E, port adjustments made in Chapter 2, Sections II.A-C, and site characteristic changes made in Chapter 3, Section II.D.
Table 7-1: BTM Project + PM Capital Contingency Costs	\$5.72	\$0.00	See Cal Advocates Chapter 1, Section II.F.
Table 7-3: Customer- Owned, BTM Rebate	\$126.47	\$43.11	Due to cost adjustments made in Cal Advocates Chapter 1, Sections II.A-E, port adjustments made in Chapter 2, Sections II.A-C, and site characteristic changes made in Chapter 3, Section II.D.
Table 7-3: Customer- Owned O&M Rebate	\$0.01	\$0.06	Due to changes in allocations of ports per customer segment per Cal Advocates Chapter 2, Section II.A.
Table 7-3: Preliminary Design and ROM Process	\$3.71	\$0.00	See Cal Advocates Chapter 1, Section II.F.
Table 7-3: Utility- Owned, BTM O&M	\$1.43	\$1.99	Due to changes in allocations of ports per customer segment per Cal Advocates Chapter 2, Sections II.A-C.

If the Commission instead rejects Cal Advocates' recommendations to remove DCFCs from EVC 2 but otherwise approves Cal Advocates' other recommendations, PG&E's BTM EV infrastructure costs will decrease from \$90.2 million to \$73.7 million

capital costs and \$126.5 million to \$54.3 million expense costs, PG&E's customer-owned BTM expense will increase from \$0.01 million to \$0.06 million, PG&E's utility-owned BTM operations & maintenance expense will increase from \$1.4 million to \$2.7 million.

If the Commission implements the declining rebate structure recommended in this section yet denies all other Cal Advocates recommendations, the Commission should multiply PG&E's infrastructure budget, excluding budget for MFH in AB 841 PCs, by 80% to determine the effects on the budget of this tiered rebate structure.

F. The Commission should require PG&E to remove capital project management, capital contingency, and preliminary design costs from cost estimation, since they are already incorporated in SCE's Charge Ready 2 dollars per port

PG&E requests additional budget for the cost elements of capital project management, capital contingency, and preliminary design costs for installation of the EV charging infrastructure.⁷⁰ The Commission should deny PG&E's request for these additional costs,⁷¹ because they were incorporated into SCE's CR 2 \$15,000 per port cost structure and their inclusion in EVC 2 would be redundant.

In D.20-08-045, Appendix A, Table 1, the \$15,000/port authorized for SCE's CR 2 program includes capital costs broken up into two parts: \$13,344 for the capital side costs, and \$1,656 for the expense costs. The \$13,344 capital costs are further broken down into EV infrastructure utility and customer-side costs, non-labor costs, and labor costs. D.20-08-045, Appendix A, footnote 469 states that "Customer Side Costs" include "A&E Admin Costs," "Customer Infrastructure," and a 10% contingency. This clearly demonstrates that the capital contingency costs are incorporated in the \$13,344 capital side costs, and therefore in the total cost of \$15,000/port. Since the costs were

⁷⁰ PG&E Testimony, pp. 7-3 to 7-4, Tables 7-1 and 7-3.

⁷¹ PG&E Testimony, pp. 7-3 to 7-4, Tables 7-1 and 7-3.

1 incorporated into the per port cost in CR 2, approving a separate budget for PG&E's
2 capital EV infrastructure-related contingency costs in EVC 2 would be duplicative.⁷²

3 Additionally, the labor cost category in D.20-08-045 Appendix A, Table 1 is
4 derived from a scaled version of the labor costs in SCE's CR 2 workpapers.⁷³ This labor
5 cost category, includes the labor category "TEPM", which stands for "TE project
6 management".⁷⁴ This shows that the labor cost category includes capital project
7 management, and PG&E's additional capital project management cost element should be
8 denied as it is also duplicative.

9 Finally, "A&E Admin Costs" (i.e., architectural and engineering), a subset of CR
10 2's capital "Customer Side Costs," are provided in the "Site Example Revised"
11 worksheet tab of SCE's workpaper. One of the cost elements of "A&E Admin Costs" is
12 "Preliminary Design."⁷⁵ While SCE and PG&E have expensed preliminary design costs,
13 Cal Advocates concludes these two cost elements are the same. For example, SCE's
14 workpapers incorporates "Preliminary Design" as a charging infrastructure installation
15 architecture and engineering cost, while PG&E describes "Preliminary Design" as a
16 "desktop review" to evaluate a site's suitability, and a site walk to provide an EV
17 infrastructure site cost estimate.⁷⁶ Both SCE's and PG&E's preliminary design are
18 related to EV charging infrastructure and are performed prior to installing the charging

⁷² To be clear, in this section Cal Advocates only recommends denying PG&E's capital contingency cost element, not PG&E's expense contingency. PG&E's expense contingency is for expenses that are not directly associated with PG&E's EV infrastructure deployment. These expense contingency costs, as well as other expense costs, could be covered in the \$1,656 expense portion of the \$15,000/port Charge Ready 2 budget, but Cal Advocates in its cost per port recommendations utilizes only the \$13,344 capital portion of the \$15,000/port to calculate the capital-only portions of PG&E's EVC 2 infrastructure budget.

⁷³ D.20-08-045, Appendix A, footnote 466. Specifically, the Commission utilizes SCE's "Master Workpaper CR 2 Portfolio (Four Year)" worksheet as a basis to scale labor costs to eventually derive the \$15,000/port.

⁷⁴ SCE's CR 2 Master Workpaper worksheet "CR 2 Portfolio (Four Year)", line 17. Note that the cost category "Labor (Capital)" in line 16 includes all of the labor cost lines greyed out underneath it, from lines 17-23.

⁷⁵ SCE's CR 2 Master Workpaper worksheet "Site Example Revised", line 9.

⁷⁶ PG&E Testimony, p. 4-6, line 14 to 4-7 line 22.

1 infrastructure and are required to be performed by engineers. Based on Cal Advocates’
2 staff engineering experience, PG&E’s EV infrastructure site cost estimate also need to be
3 performed by an engineer. Therefore, because both PG&E’s and SCE’s “preliminary
4 design” costs are performed by engineers for and prior to the installation of EV charging
5 infrastructure, the cost elements appear to be equivalent. As the preliminary design is
6 already incorporated in SCE’s CR 2 cost per port, Cal Advocates recommends that
7 PG&E should not be allowed to include a separate preliminary design cost adder as doing
8 so would be duplicative.

9 In total, denying PG&E the cost elements of capital project management, capital
10 contingency, and preliminary design costs reduces PG&E’s capital budget by \$5.72
11 million, and reduce its expense budget by \$3.71 million.⁷⁷

12 **G. The Commission should require PG&E to reduce its non-EV**
13 **infrastructure and non-ME&O costs**

14 **1. The Commission should reduce PG&E’s proposed**
15 **cancelled projects budget from \$1.1 million to**
16 **██████████ by improving its method for estimating**
17 **sunk costs related to customer attrition.**

18 PG&E requests \$1.1 million to cover its sunk costs related to customer attrition
19 and cancelled projects.^{78,79} PG&E states that it will address customer attrition by
20 improving upon previous TE program application processes and enhancing site
21 prioritization methodologies in EVC 2.^{80,81} PG&E did not collect information on
22 utilization potential or estimated trench lengths in its application process in the EVCN
23 program, however, PG&E’s EV Fast Charge program application process does collect

⁷⁷ PG&E Testimony, pp. 7-3 to 7-4, Tables 7-1 and 7-3.

⁷⁸ PG&E Testimony, p. 4-15, lines 22 – 29.

⁷⁹ PG&E Testimony, p. 7-4, Table 7-3.

⁸⁰ PG&E Testimony, p. 2-8, lines 23 – 28.

⁸¹ PG&E Testimony, p. 4-2, lines 21 – 26.

1 more detailed information such as site address and conditions, and utilization potential.⁸²
2 PG&E states that this additional information gathered during the application process
3 allows PG&E to more effectively prioritize sites, which reduces the number of customers
4 that withdraw their program applications because of higher-than-expected costs or
5 technical complexities discovered after a program application is initiated.⁸³ Therefore
6 PG&E should expect a reduction in the number of cancelled projects relative to total
7 program size when comparing EVC 2 to EVCN by utilizing these lessons learned and
8 continuing to improve on the EVC 2 program. Rather than rely on lessons learned to
9 improve the program and reduce ratepayer costs, PG&E instead assumes attrition rates
10 and costs will remain constant across the two programs and proposes a cancelled project
11 cost estimate based on a simple proportional per-port cancelled project costs from EVCN,
12 as seen below on Table 7.⁸⁴
13

⁸² PG&E Testimony, p. 2-8, lines 11 – 16.

⁸³ PG&E Testimony, p. 2-8, lines 16 – 22.

⁸⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08, Atch 01, worksheet “Q8.i”.

Table 7: PG&E’s Estimated EVC 2 Cancelled Projects Budget⁸⁵

EVCN CANCELLED PROJECT COST PER PORT	
EVCN Cancelled Projects (as of Sep 2021) ¹	\$386,000
EVCN Total Ports	4,827
EVCN CANCELLED PROJECT COST PER PORT	\$79.97

EVC 2 PROGRAM CANCELLED PROJECT ESTIMATE	
EVCN Cancelled Project Cost per Port	\$79.97
EVC 2 Program Ports ²	12,000
EVC 2 PROGRAM CANCELLED PROJECT ESTIMATE	\$959,602

Notes:
¹ Total has been rounded to the nearest thousand
² Excludes 4,000 New Construction ports

Proportionally scaling the cancelled project costs for EVC 2 in this manner is inappropriate because it does not assume that PG&E’s continued improvements to the application process will change the number of expected cancelled projects. Instead, the EVC 2 program cancelled projects estimate should be determined using the total number of ports among cancelled EVCN projects, because that figure allows assumptions concerning the number of expected cancelled projects to be incorporated into the calculation. PG&E’s commitment to improving its EVC 2 application process and reducing customer attrition should result in a reduction of a number of expected cancelled projects relative to total program size, and that assumption should be incorporated into its EVC 2 cancelled projects budget estimate.

The average cost per cancelled project port can be determined by using the EVCN cancelled project ports total and the total EVCN expense costs related to cancelled projects, as demonstrated below:

⁸⁵ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08, Atch 01, worksheet “Q8.i”, before escalation and contingency.

$$\frac{EVCN \text{ Cancelled Projects Expense Costs}}{EVCN \text{ Cancelled Projects Port Total}^{86}} = \frac{\$386,000}{\blacksquare}$$

$$= \blacksquare \text{ per cancelled project port}$$

The cancelled projects port total also allows for better understanding of cancelled projects relative to program size.

$$\frac{EVCN \text{ Cancelled Projects Port Total}}{Total \text{ EVCN Ports}} = \frac{\blacksquare}{4827} = \blacksquare$$

When compared to the total 4,827 EVCN ports, the number of cancelled project ports equaled \blacksquare of the total program size. The results of these two calculations can be combined with the EVC 2 program size to obtain an EVC 2 cancelled project budget estimate.

$$EVC \text{ 2 Program Ports} * \blacksquare * \blacksquare \text{ per cancelled project port} =$$

$$12,000 * \blacksquare * \blacksquare \text{ per cancelled project port} = \blacksquare$$

While this method results in the \blacksquare , it allows for a more effective illustration of the impacts of PG&E's assumptions in determining its EVC 2 cancelled projects budget estimate. When compared to the total 4,827 EVCN ports, the number of cancelled project ports equaled \blacksquare of the program size. With PG&E's commitment to improving the program application process and planned investment in tools, such as the EV Site Prioritization Tool, to further assess potential sites, and acknowledgement that this commitment will reduce customer attrition,⁸⁷ the number of EVC 2 cancelled project ports should equal less than \blacksquare of the total EVC 2 program size. PG&E acknowledged that improving its application processes in its EV Fast Charge has improved upon EVCN project prioritization and plans to continue improving on these applications in EVC 2.⁸⁸ As a result, it is reasonable to expect PG&E to reduce the expected number of EVC 2 cancelled project

⁸⁶ PG&E's response to Cal Advocates-005 Q02, Atch 01 CONF.

⁸⁷ PG&E Testimony, p. 4-15, lines 22 –26.

⁸⁸ PG&E Testimony, p. 2-8, lines 11 – 28.

ports to equal [REDACTED] of the total EVC 2 program size. This assumption allows for calculation of a more appropriate EVC 2 cancelled projects budget.

$$12,000 * [REDACTED] * [REDACTED] \text{ per cancelled project port} = [REDACTED]$$

Should the program size total equal 12,000 ports (excluding new construction), PG&E should use the result of this calculation as its starting point to determine its EVC 2 cancelled projects budget, prior to application of escalation factors and contingency costs. Due to PG&E's escalation factors varying over the proposed program duration, the years to which this reduction is applied can cause significant variations in the final calculated cancelled projects budget. Therefore, Cal Advocates calculated several example scenarios which illustrate this variation and apply the proposed reduction across a variety of years to determine an appropriate post-escalation and post-contingency cancelled projects budget.⁸⁹ When using PG&E's proposed 12,000 port program size, Cal Advocates determined that the cancelled projects post-contingency and post-escalation cost estimate could vary between roughly [REDACTED] and [REDACTED], however, this calculation should be based upon the final number of EVC 2 Program Ports (excluding New Construction ports) after reductions and adjustments, not to exceed the originally proposed 12,000 ports. As discussed further in Chapter 2 below, Cal Advocates recommends that the total number of ports in the EVC 2 program (excluding new construction) be reduced to 6,710.⁹⁰ This reduced total port count should serve as the starting point for the calculation of the EVC 2 cancelled projects budget estimate.

$$6,710 \text{ ports} * [REDACTED] * [REDACTED] \text{ per cancelled project port} = [REDACTED]$$

Using the same calculation process as performed for the total developed using PG&E's proposed program size, Cal Advocates determined that the post-contingency and post-escalation cancelled projects budget estimate using Cal Advocates' recommended port count ranges between roughly [REDACTED] and [REDACTED].⁹¹

⁸⁹ Example calculations can be found in Appendix B, Table B-1, p. B-1.

⁹⁰ See Cal Advocates EVC 2 Testimony, Chapter 2, Section II.A., Table 10, p. 2-8.

⁹¹ Example calculations can be found in Appendix B, Table B-2, p. B-2.

1 Should the Commission adopt Cal Advocates' proposed port count reduction, it
2 should require PG&E to reduce its proposed cancelled projects budget estimate to
3 [REDACTED]. Should the Commission determine that a different final port count for EVC 2
4 is appropriate, the cancelled projects budget should be derived using the methodology
5 described in this chapter and the final port count (excluding new construction), not to
6 exceed the originally proposed 12,000 ports by PG&E.

7 **2. The Commission should reduce PG&E's proposed**
8 **EV Site Prioritization Tool budget from \$1.73**
9 **million to \$1.656 million.**

10 PG&E requests \$1.73 million to develop the EV Site Prioritization Tool, an
11 internal site suitability screening tool to assess and prioritize potential charger locations
12 based on their ability to support program objectives.²² Through discovery, PG&E
13 disclosed that it had allocated \$200,000 for initial tool development, and \$1,250,000 for
14 tool enhancements, license fees, and user accounts, for a total of \$1.45 million.²³

15 Cal Advocates inquired with PG&E about its discrepancy between the \$1.45
16 million total provided in its response to Cal Advocates' Data Request Cal Advocates-
17 PGE-A2110010-001 (DR 001) Q08v and the \$1.73 million total provided in its EVC 2
18 prepared testimony,^{24,25} both in Chapter 4 prepared by Ms. Meredith Morford,²⁶ and
19 Chapter 7 prepared by Mr. Brandon Jazmin.²⁷ PG&E stated that the total provided in the
20 DR 001 response was a starting forecast of \$1.50 million to which escalation and
21 contingency costs still needed to be applied to reach the \$1.73 million total.²⁸ A forecast

²² PG&E Testimony, p. 4-5, lines 6 – 9.

²³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08, Atch 01, worksheet "Q8.v".

²⁴ PG&E Testimony, p. 4-5, lines 23 – 25.

²⁵ PG&E Testimony, p. 7-4, Table 7-3.

²⁶ PG&E Testimony, p. MM-1 line 31 to MM-2 line 1.

²⁷ PG&E Testimony, p. BJ-1, lines 20 – 23.

²⁸ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q04a.

of \$1.50 million is also included in PG&E's Expense Cost workpapers.⁹⁹ PG&E's expense cost forecast for the tool is rounded up \$50,000 higher than the estimate provided in PG&E's DR 001 response. Furthermore, when asked to further separate the \$1.25 million tool enhancements, license fees, and user accounts cost estimate provided in response to DR 001, PG&E provided a total estimate that was \$10,000 less than their forecast in DR 001.¹⁰⁰ Table 8, which is PG&E's estimated EV Site Prioritization Tool Budget, shows the estimated costs for PG&E's EV Site Prioritization Tool provided in response to Cal Advocates' DR 005.

Table 8: PG&E's estimated EV Site Prioritization Tool Budget¹⁰¹

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Sum
Initial Tool Development	\$0.23	-	-	-	-	-	\$0.23
Tool enhancements	-	\$0.13	\$0.13	-	-	-	\$0.26
License fees	-	\$0.14	\$0.14	\$0.14	\$0.14	\$0.14	\$0.70
User accounts	-	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.25
						Total:	\$1.44

PG&E's updated estimate reveals pre-escalation and contingency expense cost forecast for the tool rounded up \$60,000 higher than the actual estimates provided to PG&E by a potential vendor. PG&E's expense cost workpapers must be corrected to represent the actual estimate provided by PG&E's potential vendor to obtain a correct estimate for the total EV Site Prioritization Tool budget. Due to PG&E's escalation

⁹⁹ PG&E Workpapers, Atch. 02, worksheet "Ch. 7 - Expense", line 6.

¹⁰⁰ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q04c.

¹⁰¹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q04c (Table is based on PG&E's response before escalation and contingency, assuming even distribution of estimated budget across applicable years).

factors varying over the proposed program duration, the years to which this reduction is applied can cause significant variations in the final calculated cancelled projects budget. Therefore, Cal Advocates calculated several example scenarios which illustrate this variation and apply the proposed reduction across a variety of years to determine an appropriate post-escalation and post-contingency cancelled projects budget.¹⁰² Appendix Table B-3 illustrates the importance of the \$60,000 rounding to the calculation of contingency and escalation, and allows Cal Advocates to determine that the corrected post-escalation and post-contingency EV Site Prioritization Tool budget roughly ranges between \$1.652 million and \$1.660 million.

These example calculations indicate that the application of this \$60,000 reduction between PG&E's assumed \$1.50 million total and the vendor-provided \$1.44 million total can result in a difference as large as approximately \$75,000 in the total calculated EV Site Prioritization Tool budget. To account for this, the EV Site Prioritization Tool budget should be reduced to \$1.656 million.

3. The Commission should reduce PG&E's proposed EV Savings Calculator budget from \$1.15 million to [REDACTED] to better reflect the scope of proposed improvements.

PG&E requests \$1.15 million to make improvements to the EV Savings Calculator Tool (formerly known as the EV Cost of Ownership Tool),^{103,104} a tool that PG&E describes as "a centralized place where customers can go to understand the total cost of ownership of an EV."¹⁰⁵ PG&E requests this budget in order for the tool to be "updated to respond to feedback we have received from customers, responding to their needs, and growing the tool to support customers during all parts of the customer journey."¹⁰⁶ The

¹⁰² Example calculations can be found in Appendix B, Table B-3, p. B-3.

¹⁰³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q03a.

¹⁰⁴ PG&E Testimony, p. 7-4, Table 7-3.

¹⁰⁵ PG&E Testimony, p. 4-4, lines 14 – 15.

¹⁰⁶ PG&E Testimony, p. 4-4, lines 16 – 18.

1 original budget allocated for the EV Cost of Ownership Tool totaled \$1.24 million
2 (\$774,000 in capital, and \$466,000 in expense),¹⁰⁷ and PG&E's recorded costs for the
3 tool through September 2021 equals \$1.17 million, which includes development costs to
4 satisfy the original scope of the work, enhancements, operations and maintenance costs,
5 and marketing.¹⁰⁸ PG&E states that proposed enhancements to the tool in EVC 2 include
6 incorporating user feedback to design features to better serve customers targeted by EVC
7 2 (MFH and AB 841 PC sectors). Proposed enhancements include translation into
8 different languages, the addition of customer testimonials, tailoring highlighted
9 incentives to low-income customers, and potentially updating the rate comparison engine
10 for new rates.¹⁰⁹ While Cal Advocates supports the development of tools to help
11 customers make more informed program participation decisions, PG&E's request of
12 \$1.15 million, nearly the same as the initial budget outlined for the tool, is unjustified,
13 and should be reduced.

14 The \$1.17 million spent thus far on the tool included initial development,
15 maintenance, and improvements;¹¹⁰ the proposed \$1.15 million EVC 2 tool budget scope
16 *solely* includes making upgrades to the tool.¹¹¹ While PG&E plans to continue to respond
17 to customer feedback and enhance this tool throughout the term of EVC 2
18 implementation, it has not justified its request of almost the entire original budget to
19 develop, maintain, and enhance the existing tool. PG&E has not provided any indication
20 that the proposed tool enhancements in EVC 2 are dissimilar to those in the initial
21 development, or that PG&E intends to complete significantly more resource-intensive
22 enhancements, and as such the proposed EVC 2 budget should reflect only the amount

¹⁰⁷ PG&E Advice Letter 5064-E, *Education and Outreach Proposal Pursuant to Decision 16-12-065*, May 2, 2017, Figure 7, p. 19, available at https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5064-E.pdf.

¹⁰⁸ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q03a.

¹⁰⁹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q03b.

¹¹⁰ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-005), Q03a.

¹¹¹ PG&E Testimony, p. 4-4, lines 12 – 13.

1 not dedicated to initial tool development. When Cal Advocates conducted discovery
2 asking PG&E to document how it calculated the costs for the proposed EV Savings
3 Calculator budget, PG&E stated that it consulted with its internal operations team and
4 used benchmark data from engagements with the vendor who supports PG&E's EV
5 Savings Calculator to develop the estimate but did not provide further details.¹¹² Instead,
6 PG&E's proposed Grid Visibility Tool (GVT) initial development budget may be used as
7 a proxy to determine the amount dedicated to initial development of the EV Savings
8 Calculator Tool.

9 PG&E requests \$1.14 million to develop the GVT, a customer-facing tool that will
10 build off existing grid visibility maps to more easily allow PG&E customers to determine
11 available capacity on the local grid at a potential project site.¹¹³⁻¹¹⁴ PG&E intends to
12 integrate this tool with the EV Savings Calculator to allow users to import expected EV
13 charging infrastructure demand to determine whether the available capacity is sufficient
14 to meet their expected load.¹¹⁵ PG&E also states that due to the similarities to, and
15 planned integration with, the EV Savings Calculator, the proposed cost estimate for the
16 GVT was based on the cost to initially develop the EV Savings Calculator in PG&E's
17 EVCN program.¹¹⁶ Specifically, PG&E states that the tools share similar design and user
18 experience.¹¹⁷ PG&E has estimated [REDACTED]

19 [REDACTED]¹¹⁸

20 Whereas the proposed GVT will involve development of a new tool, the proposed
21 EVC 2 EV Savings Calculator budget is dedicated solely to upgrades to the existing tool.

¹¹² PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08iv.

¹¹³ PG&E Testimony, p. 4-11, lines 29 – 30.

¹¹⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q07ii.

¹¹⁵ PG&E Testimony, p. 4-11, lines 16 – 21.

¹¹⁶ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q07i.

¹¹⁷ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-006), Q02a.

¹¹⁸ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-006), Q03a CONF.

Both budgets were benchmarked using the EVCN EV Savings Calculator Tool development and spend, and PG&E has estimated [REDACTED]. This figure can be used as a proxy for the EV Savings Calculator Tool initial development budget. Because PG&E is not developing a new tool and is solely performing upgrades to the EV Savings Calculator in its proposed EVC 2 budget and has not indicated that it intends to perform significantly more upgrades than in the original development, the proposed budget should be reduced by [REDACTED] to eliminate the included tool development costs leftover from the EVCN EV Savings Calculator Tool spend. PG&E's proposed EV Savings Calculator budget should be reduced to [REDACTED] to better reflect the scope of the proposed improvements.

H. The Commission should reduce PG&E's ME&O budget to reflect lessons learned from the EVCN

The PG&E EVC 2 program includes a \$9.61 million marketing, education, and outreach (ME&O) budget.¹¹⁹ PG&E's proposed budget should be reduced by \$5.18 million because PG&E does not adequately demonstrate that the ME&O program leverages lessons learned from the EVCN program, and that aspects of the ME&O program are potentially duplicative of existing non-ratepayer funded programs.

In its testimony, PG&E acknowledged that "high-touch"¹²⁰ (i.e. one-on-one) communications were the most effective at incentivizing participation in the EVCN program. According to PG&E's most recent pilot program report,¹²¹ the PG&E sales team was responsible for originating approximately 57 percent of program

¹¹⁹ PG&E Testimony, p. 7-4, line 11, Table 7-3.

¹²⁰ PG&E Testimony, p. 6-3, lines 20-22. "As a result, developing strong customer relationships and high touch (1-on-1) communications will continue to be used in EVC 2."

¹²¹ *Pacific Gas and Electric Company (U 39 E) Electric Vehicle Charge Network Quarterly Report, Second Quarter, 2021*, Pacific Gas and Electric Company, filed January 5, 2022. (EVCN Report). Accessible at <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M436/K965/436965053.PDF>

1 applications,¹²² compared with 10 percent from charging station vendors and EVSPs¹²³
2 and 8 percent from word-of-mouth,¹²⁴ the following two categories with the highest
3 percentage of program applications with a clear source.¹²⁵ Other marketing approaches
4 responsible for less than ten percent of lead generation were municipalities (6 percent),¹²⁶
5 email (4 percent),¹²⁷ events (4 percent),¹²⁸ and online media (1 percent).¹²⁹ PG&E also
6 acknowledged these figures in its testimony, stating that PG&E customer relationship
7 managers created “nearly 60 percent of total applications.”¹³⁰

8 PG&E’s ME&O budget does not reflect the most effective marketing approach as
9 indicated in PG&E’s own data demonstrating that one-on-one targeted relationships is the
10 best method to drive customer adoption in its EV charger program. For example, PG&E
11 proposes \$2.16 million¹³¹ for direct services, which can include email, direct mail, and

¹²² EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019. Accessed: https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/program-participants/EV-Charge-Network-2021-Q2-Report.pdf

¹²³ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹²⁴ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹²⁵ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019. Ten percent of applications chose “other” as an incoming lead generation, which does not have a clearly identifiable source.

¹²⁶ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹²⁷ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹²⁸ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹²⁹ EVCN Report, p. 3. Figure 2.3 EVCN Program Applicant Source of Program Knowledge Through Q2 2019.

¹³⁰ PG&E Testimony, p. 6-3, lines 18-20. “The majority of EVCN applications were driven by PG&E Business Energy Solutions (BES) customer relationship managers, accounting for almost 60 percent of the total applications.”

¹³¹ PG&E Testimony, p. 6-13, Line 1. “Direct-to-Customer (E-mail, Direct Mail, Teleservices),” Table 6-3 ME&O Expense Cost Summary.

1 teleservices.¹³² While the teleservices will provide the high-touch engagement that
2 PG&E found successful, it is presently unclear how much PG&E plans to allocate to
3 teleservices versus direct mail and email, the latter of which drove very little lead
4 generation in the pilot program. Moreover, regardless of the amount of the \$2.16 million
5 that PG&E plans to allocate to teleservices, the \$2.16 million is already less than the
6 \$2.26 million PG&E plans to allocate to “Agency Creative Execution and Support
7 Materials”¹³³ and the \$1 million allocated to “Digital Media.”¹³⁴ Given that PG&E plans
8 to reuse previous messaging from the pilot program in order to reduce EVC 2 program
9 costs,¹³⁵ it is unclear why these costs are already higher than the proven effective method
10 of lead generation.

11 The success of one-on-one relationships in driving lead generation for TE
12 programs is not unique to PG&E. SCE found similar results in its CR 2 program. For
13 example, although SCE provided a variety of online tools to increase customer awareness
14 about EVs and the benefits of EV ownership in SCE’s CR Pilot, it “later found direct
15 engagement and interactions to be more effective in educating customers,”¹³⁶ particularly

¹³² PG&E Testimony, p. 6-8, lines 4-9. “Teleservices” here is defined as the one-on-one engagement identified as effective for PG&E “One-to-one phone call from trained representatives to have a deeper conversation with customers about the program details, drive program interest and encourage application submission. Identified leads that are not ready to submit an application would be nurtured over time with PG&E BES customer relationship managers.”

¹³³ PG&E Testimony, p. 6-13, line 6. Table 6-3 ME&O Expense Cost Summary, “Agency Creative Execution and Support Materials.” PG&E did not explicitly define “Agency Creative Execution and Support Materials” in its Testimony, apart from its appearance as a category in Table 6. However, PG&E later provided a definition separately in its data request response: PG&E’s response to Cal Advocates-007, Q1, page 2. “The agency creative, execution and support materials budgets funds the development and production of campaign items necessary to support the acquisition and utilization efforts which may include direct mail, email, internal relationship manager collateral, printed materials, videos, testimonials, digital media, and social media posts.”

¹³⁴ PG&E Testimony, p. 6-13, line 2. “Digital Media”, Table 6-3 ME&O Expense Cost Summary.

¹³⁵ PG&E Testimony, p. 6-4, lines 19-22. “Revising existing outreach materials from EVCN instead of creating new materials will provide for some cost efficiencies and help PG&E get to market quickly and achieve results.”

¹³⁶ SCE Amended Prepared Testimony in Support of Southern California Edison Company’s Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs (“SCE Opening Testimony”), Amended Appendix A, Amended Charge Ready Pilot Report Appendix A, p. A-34.
<https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1806015/1800/241166994.pdf>

1 in the case of MFHs.¹³⁷ However, much like in PG&E’s EVC 2 program application,
2 SCE apportioned a lower amount of ME&O budget to its high-touch ME&O program¹³⁸
3 (referred to as “TE Advisory Services”).¹³⁹ In its Decision relating to SCE’s CR 2
4 program, the Commission agreed with Cal Advocates’ recommendation that SCE should
5 fund its TE Advisory Services program because it built on lessons learned in the pilot,
6 and reject the broader-based proposed-ME&O initiatives due to potential duplication of
7 existing, non-ratepayer funded efforts.¹⁴⁰

8 PG&E’s EVC 2 ME&O program is also potentially duplicative of other areas of
9 the EVC 2 budget. PG&E states that it requests \$13.54 million for internal labor related
10 to customer acquisition,¹⁴¹ in addition to the \$9.61 million total requested for ME&O
11 activities.¹⁴² This customer acquisition labor includes activities to acquire and support
12 site hosts, such as explaining the program and providing tools and resources to aid in site

¹³⁷ SCE Opening Testimony, Amended Appendix A, p. A-34. “The initial response to TE Advisory Services also confirmed a business customer interest for more technical assistance from a trusted energy advisor to help navigate the complexities of adopting and deploying TE technologies.” Business customers here include workplaces, MFHs, Fleets and destination centers.

¹³⁸ SCE Opening Testimony, p. 66. Table III-4, ME&O Costs. \$4.8 million for TE Advisory Services, \$8.0 million for customer education, and \$28.7 million for Broad EV Awareness, for a total of \$41.5 million in the CR 2 ME&O budget.

¹³⁹ SCE Opening Testimony, pp. 61-63.

¹⁴⁰ D.20-08-045, p. 111, “For the TE Advisory Services Expansion portion of SCE’s ME&O program, we agree with Cal Advocates, that the proposal builds upon lessons learned from the Phase 1 Pilot and targets customers eligible to participate in CR 2. To reach more than just potential fleet or government site hosts, SCE should expand its advisory services to reach other hard to reach customer segments, such as MUD and small business customers.”
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M346/K230/346230115.PDF>

¹⁴¹ PG&E Testimony, p. 7-4, line 8, Table 7-3, Total EVC 2 BTM + Program Expense Cost Details.

¹⁴² PG&E Testimony, p. 7-4, line 11, Table 7-3, Total EVC 2 BTM + Program Expense Cost Details.

1 host decision-making.¹⁴³ However, the ME&O budget also requests \$1.43 million¹⁴⁴ in
2 labor support and \$1.48 million¹⁴⁵ in relationship management support. PG&E states that
3 relationship management support will include outreach to potential site hosts who have
4 already expressed interest in the program,¹⁴⁶ and relationships with other non-PG&E
5 entities to provide customer education and program messaging.¹⁴⁷ Based on the
6 definitions of these line items as provided, it is unclear how they are sufficiently different
7 to warrant separate funding sources for the program and are, thus, potentially duplicative.

8 Moreover, there are multiple categories within PG&E’s ME&O program budget
9 that potentially duplicate each other. For example, PG&E states that the digital media¹⁴⁸

¹⁴³ PG&E Testimony, p. 4-3, lines 3-13. “In summary, PG&E will provide the follow program administration activities to acquire and support site hosts, at a minimum:

- Consultation in determining onsite charging requirements;
- Explanation of program requirements to applicants and their decision makers throughout the entire process;
- Tools and resources for applicants to assist in their decision making; and
- Continuous improvement of processes, tools and resources to make for a better experience for subsequent applicants.

These program administration tasks are key to successful implementation. PG&E requests \$20.6 million in program administration expenses over the life of the program to fund internal labor related to these efforts.”

¹⁴⁴ PG&E Testimony, p. 6-13, line 5, Table 6-3 ME&O Expense Cost Summary, “PG&E Marketing Labor Support”

¹⁴⁵ PG&E Testimony, p. 6-13, Line 3, Table 6-3 ME&O Expense Cost Summary, “Relationship Management Support (BES/Public Affairs)”

¹⁴⁶ PG&E Testimony, p. 6-9, lines 22-30. “PG&E’s BES representatives, Division Leadership Teams, Contact Center support, and Local Public Affairs will coordinate to support EVC 2. These PG&E teams have already established strong relationships with many potential site hosts and will utilize educational materials and sales collateral to help drive program enrollment. They will work directly with customers to provide information about the program, answer questions, provide application assistance, and provide guidance on how this program can tie into more comprehensive electrification efforts.”

¹⁴⁷ PG&E Testimony, P. 6-10, lines 4-9. “Relationships will focus on working with organizations and associations, participating in speaking engagements or panel participation, and leveraging key influencers to help educate customers about the program and ultimately drive program enrollment. PG&E plans to utilize the customer and sales network of these partners to expand program messaging.”

¹⁴⁸ PG&E Testimony, p. 6-13, line 2. “Digital Media”, Table 6-3 ME&O Expense Cost Summary.

1 category includes social media posts and online paid search ads.¹⁴⁹ However, the
2 “Agency Creative Execution and Support Materials”¹⁵⁰ cost category also includes digital
3 media and social media posts.¹⁵¹ Furthermore, this cost category additionally includes
4 “direct mail, email, internal relationship manager collateral, [and] printed materials,”¹⁵²
5 some of which are also included in the “direct-to-customer”¹⁵³ category, which includes
6 “email, direct mail, and teleservices.”¹⁵⁴ Again, based on the information PG&E
7 provided, it is unclear how these categories are sufficiently different to warrant separate
8 funding sources and are thus potentially duplicative.

9 Additionally, some of PG&E’s ME&O activities are potentially duplicative of
10 existing, non-ratepayer funded programs. For example, PG&E states in its testimony that

¹⁴⁹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-007), Q1, page 2. “The digital media budget supports media selection, buying, monitoring, and reporting on digital media placements which may include, online paid search ads (Google/Gmail), and social media posts (Facebook, Twitter, LinkedIn). Digital media will be utilized for online targeting of audience segments and connecting customers with digital content and the customer interest form on PG&E’s website. Social media will utilize targeted paid posts to key customer segments helping to promote program participation.”

¹⁵⁰ PG&E Testimony, p. 6-13, line 6, Table 6-3 ME&O Expense Cost Summary, Agency Creative Execution and Support Materials”. PG&E did not explicitly define “Agency Creative Execution and Support Materials” in its Testimony, apart from its appearance as a category in Table 6. However, PG&E later provided a definition separately in its data request response: PG&E’s response to Cal Advocates-007, Q1, page 2, “The agency creative, execution and support materials budgets funds the development and production of campaign items necessary to support the acquisition and utilization efforts which may include direct mail, email, internal relationship manager collateral, printed materials, videos, testimonials, digital media, and social media posts.”

¹⁵¹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-007), Q1, page 2. “The agency creative, execution and support materials budgets funds the development and production of campaign items necessary to support the acquisition and utilization efforts which may include direct mail, email, internal relationship manager collateral, printed materials, videos, testimonials, digital media, and social media posts.”

¹⁵² PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-007), Q1, page 2. “The agency creative, execution and support materials budgets funds the development and production of campaign items necessary to support the acquisition and utilization efforts which may include direct mail, email, internal relationship manager collateral, printed materials, videos, testimonials, digital media, and social media posts.”

¹⁵³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-007), Q1, page 1

¹⁵⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-007), Q1, page 1

1 it plans to host ride and drive events¹⁵⁵ and car share pilots,¹⁵⁶ particularly in low-income
2 communities.¹⁵⁷ However, Electrify America, as part of its Cycle 3 California Investment
3 Strategy,¹⁵⁸ plans to allocate \$14 million¹⁵⁹ from 2022-2024¹⁶⁰ for brand-neutral media
4 advertising around EVs, including social media campaigns and ride-and-drive events.¹⁶¹
5 Furthermore, Electrify America plans to invest over 35 percent of its awareness campaign
6 in disadvantaged communities.¹⁶² Finally, when PG&E’s EVCN program became
7 oversubscribed, PG&E directed interested parties to other sites that could educate them
8 about EV rebates and infrastructure, including Electrify America.¹⁶³ This demonstrates

¹⁵⁵ PG&E Testimony, p. 6-18, line 2.

¹⁵⁶ PG&E Testimony, p. 6-20, lines 12-33, and p. 6-21, lines 1-4.

¹⁵⁷ PG&E Testimony, p. 6-18, lines 15-17, “To address 15 this barrier, PG&E will partner with car share companies to pilot car 16 sharing at MFH sites in AB 841 PCs.”

¹⁵⁸ *California ZEV Investment Plan: Cycle 3 Public Version*, Electrify America, May 2021. (Electrify America Cycle 3 Plan). Accessible at:

https://www.electrifyamerica.com/assets/pdf/cycle3_investment_plan.2338a9b6.pdf

¹⁵⁹ Electrify America Cycle 3 Plan, p. 6. “Brand Neutral Campaign: Boosting ZEV Adoption through Education and Awareness (\$14M): Similar to Electrify America’s Cycle 2 investments, in Cycle 3 Electrify America plans to drive increased education and awareness through educational marketing, ride and drives, and other experiential marketing.”

¹⁶⁰ Electrify America Cycle 3 Plan, p. 9. “The Cycle 3 period is from Q1 2022 through Q2 2024.”

¹⁶¹ Electrify America Cycle 3 Plan, p. 6. “Similar to Electrify America’s Cycle 2 investments, in Cycle 3 Electrify America plans to drive increased education and awareness through educational marketing, ride and drives, and other experiential marketing.”

¹⁶² Electrify America Cycle 3 Plan, p. 5. “Consistent with guidance from CARB, Electrify America will strive to ensure that 35% of Cycle 3 investments are in low-income and disadvantaged communities.” Citing: Electrify America uses definitions for low-income and disadvantaged communities established by the State of California, which are published and mapped by CARB on its “Disadvantaged and Low-Income Communities Investments” webpage:

<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm>.

¹⁶³ EVCN Report, p. 4:

“PG&E has shared additional resources with these sites to support their desire to install EV charging, such as the following:

Other external rebates available:

- CEC CALeVIP – The California EV Infrastructure Project.
- BAAQMD Charge! – Bay Area air district charging station rebate.

(continued on next page)

1 that not only is PG&E aware enough of Electrify America’s programs that they could
2 direct others to its site, but also that PG&E is capable of using outside materials to
3 educate customers about EVs and TE rebates.

4 It is also unclear to which customer segments – workplaces or MFHs – PG&E
5 plans to direct the most ME&O funding. PG&E anticipates that it plans to install 8,500
6 ports at public destinations and workplaces,¹⁶⁴ 2,400 ports at existing MFHs,¹⁶⁵ and 4,000
7 ports at new construction MFHs.¹⁶⁶ Given these numbers, it is reasonable to conclude
8 that PG&E plans to install a large amount of its ports at workplaces.¹⁶⁷ However, it is
9 unclear that workplaces require a proportionate majority of the ME&O budget.

10 For example, in the EVCN program PG&E reported that 73 percent of
11 applications were from workplaces¹⁶⁸ and workplaces were 62 percent of ports utilized.¹⁶⁹
12 Similarly, “EV Charge Owners” were non-residential site hosts that own and operate the
13 EVSE,¹⁷⁰ and constituted 77 percent of applications¹⁷¹ and 59% of utilized ports.¹⁷²
14 These numbers demonstrate a high degree of interest and utilization from workplaces.
15 Given that 73 percent of applications were from workplaces and PG&E rejected 76

-
- SJAPCD Charge Up! – San Joaquin air district charging station rebate.
 - CCA Rebates – Check with your local Community Choice Aggregator, such as MCE, for additional rebates.
 - Electrify America – An alternate EV charging infrastructure program.

¹⁶⁴ PG&E Testimony, p. 3-3, line 3, Table 3-1, Summary of EVC 2 Program Proposal.

¹⁶⁵ PG&E Testimony, p. 3-3, line 1, Table 3-1, Summary of EVC 2 Program Proposal.

¹⁶⁶ PG&E Testimony, p. 3-3, line 2, Table 3-1, Summary of EVC 2 Program Proposal.

¹⁶⁷ Note that Cal Advocates proposes most of the port installation should occur in MFHs, see Chapter 2 for the port allocation recommendation.

¹⁶⁸ EVCN Report, p. 3, Table 2.2 Applicant Profile Through Q2 2021.

¹⁶⁹ EVCN Report, p. 10, Table 4.1 Summary of Activated Sites through Q2 of 2021.

¹⁷⁰ EVCN Report, p. 1 “The majority of the electric vehicle service equipment (EVSE) will be owned by site hosts who are PG&E non-residential customers that have EV charging stations installed on their property.”

¹⁷¹ EVCN Report, p. 3, Table 2.2 Applicant Profile Through Q2 2021.

¹⁷² EVCN Report, p. 10, Table 4.1 Summary of Activated Sites through Q2 of 2021.

1 percent of the applications due to program oversubscription,¹⁷³ a potentially large portion
2 of the program waitlist consists of workplaces. While PG&E allocated parts of the
3 ME&O program budget to relationship management – which includes CBOs¹⁷⁴ – it is
4 unclear if those organizations will engage in the high touch practices shown to spur EV
5 adoption, or if a majority of those relationships PG&E plans to foster will be with
6 workplaces, who may need less encouragement than MFHs given previous strong
7 program interest.

8 Finally, while PG&E dedicates a large part of its equity budget to CBO
9 collaboration, apart from the car share pilot proposal,¹⁷⁵ PG&E does not specify if the
10 CBO collaboration would primarily take place in MFHs or workplaces. Such ambiguity
11 does not indicate that the program would increase EV adoption or charging access in
12 disadvantaged areas or for MFH residents. There is no guarantee that chargers installed at
13 workplaces in disadvantaged areas would be publicly available for area residents who do
14 not work at that company.

15 Cal Advocates provides the following three recommendations. First, given the
16 potentially duplicative elements of PG&E’s EVC 2 ME&O budget and its failure to
17 sufficiently incorporate lessons learned from the EVCN program, Cal Advocates
18 recommends that the Commission exclude the relationship management (\$1.48 million),
19 marketing labor support (\$1.43 million), and the “Non-AB 841 PC Utilization Site Events
20 and Stakeholder Outreach” (\$1.27 million)¹⁷⁶ from the ME&O budget as they are
21 duplicative of PG&E’s own EVC 2 labor costs and existing non-ratepayer funded
22 programs. This recommendation is consistent with the Commission’s recent direction in
23 D.20-08-045, which found that SCE’s CR 2 direct engagement strategy built on lessons

¹⁷³ EVCN Report, p. 4.

¹⁷⁴ PG&E Testimony, p. 6-8, line 2. Table 6-2, Proposed Tactics.

¹⁷⁵ PG&E Testimony, p. 6-20, lines 15-17. To address this barrier, PG&E will partner with car share companies to pilot car sharing at MFH sites in AB 841 PCs.”

¹⁷⁶ PG&E Testimony, p. 6-13, line 4. Table 6-3 ME&O Expense Cost Summary.

1 learned from the pilot program and provided appropriate customer targeting.¹⁷⁷ It is also
2 consistent with Commission Decision D.11-07-029, which limited the utilities role in
3 education and outreach “to consumers with a demonstrated interest in Electric
4 Vehicles,”¹⁷⁸ not mass marketing.¹⁷⁹ Second, the Commission should also reject the \$1
5 million “digital media”¹⁸⁰ line item from the ME&O budget as PG&E did not
6 demonstrate that it differs significantly from “agency creative execution and support
7 materials” line item. Third and finally, the Commission should require PG&E to dedicate
8 over half of its direct services¹⁸¹ budget to teleservices, with the requirement that PG&E
9 direct over half of its teleservices to MFHs rather than workplaces.

10 **III. CONCLUSION**

11 In conclusion, PG&E has overestimated costs in multiple categories in the EVC 2
12 program application. After reviewing PG&E’s EVC 2 application and testimony, Cal
13 Advocates recommends a total program budget reduction from [REDACTED] (\$95.89M capital,
14 \$179.94M expense) to \$127M (\$40.37M capital, [REDACTED] expense). A summary of the
15 cost comparison between PG&E’s proposal and Cal Advocates’ proposal can be seen in
16 the executive summary.

¹⁷⁷ D.20-08-045, p. 111. “For the TE Advisory Services Expansion portion of SCE’s ME&O program, we agree with Cal Advocates, that the proposal builds upon lessons learned from the Phase 1 Pilot and targets customers eligible to participate in CR 2. To reach more than just potential fleet or government site hosts, SCE should expand its advisory services to reach other hard to reach customer segments, such as MUD and small business customers.”

¹⁷⁸ D.11-07-029, *PHASE 2 DECISION ESTABLISHING POLICIES TO OVERCOME BARRIERS TO ELECTRIC VEHICLE DEPLOYMENT AND COMPLYING WITH PUBLIC UTILITIES CODE SECTION 740.2*, August 20, 2009, p. 65, issued in R.09-08-009. (D.11-07-029).

¹⁷⁹ D.11-07-029, p. 65.

¹⁸⁰ PG&E Testimony, p. 6-13, line 2, Table 6-3 ME&O Expense Cost Summary.

¹⁸¹ PG&E Testimony, p. 6-13, line 1, “Direct-to-Customer (E-mail, Direct Mail, Teleservices)” Table 6-3 ME&O Expense Cost Summary,

CHAPTER 2 : PROGRAM SCOPE

(Witness: James Sievers)

I. INTRODUCTION

This chapter provides analysis and recommendations regarding the size and scope of PG&E's proposed EVC 2 program and explains how PG&E's proposed EVC 2 program fits into broader TE activities currently underway in the State of California.

II. DISCUSSION

A. The Commission should require PG&E to prioritize EV charging ports in MFH AB 841 PCs

PG&E proposes to deploy 14,900 MFH, workplace, and public destination L2 charging ports through the EVC 2 program¹⁸² and to allocate the L2 chargers across different sectors, as provided below in Table 9:

Table 9: L2 ports per sector proposed by PG&E in EVC 2

	New Construction MFH	Retrofit MFH	Public destination and Workplace	Totals
AB 841 PCs	2,000	528	2,550	5,078
Non-AB 841 PCs	2,000	1,872	5,949	9,821

Lack of access to EV charging solutions for MFH and low-income residents is a key barrier to equitable EV adoption in California.¹⁸³ PG&E's proposal does not provide

¹⁸² PG&E Testimony. pp. 3-1 to 3-3.

¹⁸³ California Electric Vehicle Infrastructure Deployment Assessment: Senate Bill 1000 Report Increasing Access to Electric Vehicle Infrastructure for All (CEC SB 1000 Report), California Energy Commission Staff Report, December 2020, pp.10-11. Accessible at <https://www.energy.ca.gov/publications/2020/california-electric-vehicle-infrastructure-deployment-assessment-senate-bill>.

1 a reasonable allocation of MFH ports to AB 841 PCs, the target segment with the fewest
2 EV adopters.^{184, 185, 186}

3 Current charging infrastructure programs in California have not made satisfactory
4 progress establishing charging infrastructure in low-income areas.¹⁸⁷ For example, the
5 CEC's Clean Transportation Program (CTP) has awarded approximately \$182 million for
6 charging infrastructure, including 11,276 L2 and DCFC chargers from 2009 through May
7 2020,¹⁸⁸ but only 33% of these funds have been awarded to projects located in AB 841
8 PCs, or low-income communities.¹⁸⁹ This data, however, only reveals part of the story.
9 Twenty seven percent of California's population live in apartment buildings, and among
10 those, 72% reside in low-income communities.¹⁹⁰ Of those apartment residents, only 9%
11 are EV adopters.¹⁹¹ Recent CEC analysis confirms that public funding for EV
12 infrastructure may need to be allocated to more low-income communities.¹⁹² PG&E's

¹⁸⁴ PG&E Workpapers, Ch.7-"port deployment." Lines 1-14. The itemized port deployment shows an allocation of 9821/5079 L2 ports to non-AB 841 PC and AB 841 PC, respectively.

¹⁸⁵ Nicholas, M., Hall, D., Lutsey, N., "Quantifying the Electric Vehicle and Charging Infrastructure Gap Across U.S. Markets," *The International Council on Clean Transportation*, January 2019 (Quantifying EV Charging Infrastructure), p. 8. Accessible at:
https://theicct.org/sites/default/files/publications/US_charging_Gap_20190124.pdf

[In this survey referenced in the AB 2127 Assessment, a 2017 survey was conducted with 2831 EV adopters. The dispersion of adopters was listed as such: 83% in detached housing, 8% in attached housing with fewer than 5 units, and 9% in apartments]

¹⁸⁶ CEC SB 1000 Report: EV Charging Infrastructure Deployment Assessment. (CEC SB 1000 Report), [27% of Californian's live in apartments of which 72% are low income]. p. 10.

¹⁸⁷ CEC SB 1000 Report, pp. 25-30.

¹⁸⁸ "2020-2021 Investment Plan Update for the Clean Transportation Program." California Energy Commission (CEC), Revised Lead Commissioner Report, (October 13, 2020), (CEC 2020-2023 Investment Plan), pp. 3-4, Accessible at: <https://www.energy.ca.gov/filebrowser/download/2356>

¹⁸⁹ "2020-2021 Investment Plan Update for the Clean Transportation Program." California Energy Commission (CEC), Revised Lead Commissioner Report, (October 13, 2020), (CEC 2020-2023 Investment Plan), p. 5 Accessible at: <https://www.energy.ca.gov/filebrowser/download/2356>

¹⁹⁰ CEC SB 1000 Report, p. 10.

¹⁹¹ Quantifying EV Charging Infrastructure, p. 8.

¹⁹² CEC SB 1000 Report, pp. 33-34.

1 EVC 2 program should be designed to fill these important equity gaps. Cal Advocates
2 recommends that EVC 2 prioritize ports in MFH AB 841 PCs.

3 The CEC’s EV Charging Infrastructure Deployment Assessment report suggests
4 that as of July 2020, public L2 charger deployment is skewed towards higher income
5 communities.¹⁹³ High income areas have 64 L2 charger ports per 100,000 people,
6 middle-income areas have 56 L2 charger ports per 100,000 people, and low-income areas
7 have 51 L2 charger ports per 100,000 people.¹⁹⁴ Low-income areas include 55% of the
8 state’s population, yet only host 50% of the public L2 chargers.¹⁹⁵ Residents of high- and
9 medium- income areas who do not live in apartments possess the means to install
10 charging capability at their residence,¹⁹⁶ in addition to having access to a disproportionate
11 number of L2 public and shared private chargers.¹⁹⁷ Apartment residents do not possess
12 the ability to easily accommodate charging needs at home. Among apartment adopters,
13 18-48 % charge at home.¹⁹⁸ This compares with 84-94% of residents of single-family
14 homes.¹⁹⁹ The ability to charge at home is a tangible benefit provided to EV adopters.²⁰⁰
15 “Of all EV drivers surveyed, 83% reported using a home charger in the past 30 days.”²⁰¹
16 Research testifies to the lack of home charging infrastructure for apartment residents, and
17 how it affects charging behavior.²⁰² PG&E’s EVC 2 proposal allocates 1,872 ports for

¹⁹³ CEC SB 1000 Report, p. 30.

¹⁹⁴ CEC SB 1000 Report, pp. 29-30.

¹⁹⁵ CEC SB 1000 Report, pp. 6 and 30.

¹⁹⁶ Quantifying EV Charging Infrastructure, p. 8.

¹⁹⁷ CEC SB 1000 Report, p.30.

¹⁹⁸ Quantifying EV Charging Infrastructure, p. 9.

¹⁹⁹ CEC SB 1000 Report, p. 10.

²⁰⁰ PG&E Testimony, p. 3-4.

²⁰¹ CEC SB 1000 Report, p. 11. “Given that most charging occurs at home, lack of home charging is a major barrier to EV adoption.” Most people prefer to charge at home if the option is available. For apartment residents, it has not been an option that most are able to realize to this point. Survey data was provided by sample of all EV adopters.

²⁰² Tal, Gil, Kurani, Ken, Alan, Jenn, Chakraborty, Debapriya, Hardman, Scott, and Garas, Dahlia.

(continued on next page)

1 MFH retrofits in non-AB 841 PCs, while only allocating 528 MFH retrofits in AB 841
2 PCs.²⁰³ To encourage more adoption in communities with currently low EV adoption,
3 PG&E should provide more MFH ports in AB 841 PCs and less in non-AB 841 PCs.

4 PG&E’s proposal to deploy 9,821 L2 ports in non-AB 841 PCs and 5,079 ports in
5 AB 841 PCs²⁰⁴ is problematic because it does not align with the spirit of D.21-07-028 and
6 AB 841’s mandate to focus on equitable impacts. While PG&E’s proposal may
7 technically meet the requirements of 50% expenditure in AB 841 PCs,²⁰⁵ the nearly 2 to 1
8 ratio of L2 deployment, to MFHs in non-AB 841 PCs, is contrary to equity goals and
9 does little to address EV adoption barriers in low-income areas. As a result, PG&E’s
10 EVC 2 application is not consistent with current Commission equity priorities.

11 When considering non-ratepayer funding allocated to EV charging infrastructure
12 over the next several years, PG&E’s funding targets for non-AB 841 PC MFH retrofits
13 may be duplicative and unnecessary. The State of California appropriated \$900 million
14 in its current fiscal year (FY) 2021-2022 budget to increase light duty charging
15 infrastructure funding over three years.²⁰⁶ The funding would be appropriated primarily

“Electric Cars in California: Policy and Behavior Perspectives.” *Who’s Driving Electric Cars Understanding Consumer Adoption and Use of Plug-in Electric Cars*, 2020, Springer, pp.21-24, Accessed at https://www.researchgate.net/profile/Debapriya-Chakraborty-2/publication/339979711_Electric_Cars_in_California_Policy_and_Behavior_Perspectives/links/61081cc0c2bfa282a1a1cc5/Electric-Cars-in-California-Policy-and-Behavior-Perspectives.pdf#page=20

[“Dwelling type is often a determinant of access to home charging infrastructure. Keeping all other factors constant, having a Level 2 charger at home increases the probability of charging by 18 points while decreasing the probability of workplace charging by 19 percentage points.”], p. 23.

²⁰³ PG&E Workpapers, Ch.7- “port deployment.” lines 4, 7, and 11.

²⁰⁴ PG&E Workpapers, Ch.7- “port deployment.” lines 1-14. Calculation performed by adding all AB 841 PC deployed ports and subtracting DCFC, and adding all non-AB 841 PC deployed ports

²⁰⁵ PG&E Workpapers, Ch.7- “per port cost analysis” lines 3-5, 8-12; and PG&E Workpapers, Ch. 7- “port deployment”, Lines 2-4, 7-13. [The per port costs were multiplied by the port deployment for all categories of Level 2 and DCFC port deployment to provide the calculation that 57.3% of the projected funding would be for AB 841 PCs, while 42.7% was appropriated for non-AB 841 PCs. The entire DCFC allocation was appropriated for AB 841 PCs.] See Section 2, Recommendation D for an explanation.

²⁰⁶ “The 2021-22 Budget: Overview of the Governor’s Budget.” *Legislative Analyst’s Office*, January 2021, Accessed at <https://lao.ca.gov/reports/2021/4309/budget-overview-2021.pdf>. pp. 15-16.

1 through an extension of AB 8²⁰⁷ fees and securitizing bonds that would appropriate \$300
2 million for light duty charging infrastructure over two years.²⁰⁸ This additional revenue
3 would be distributed through the CTP, and is incremental to several other state funding
4 streams, including the CEC’s CTP recurring \$100 million allocation. This annual
5 recurring funding is provided through AB8 fees and has been extended through 2023.²⁰⁹
6 The CTP also has private funding partners that contribute to incentivizing EV
7 infrastructure.²¹⁰

8 In addition to legislatively proscribed funding, additional funding has been
9 allocated through legal settlements. The Volkswagen Environmental Mitigation Trust,
10 created through litigation for malicious practices VW engaged in with smog regulations,
11 also provides funding for EV charging infrastructure.²¹¹ California’s portion of the \$2.7
12 billion award is \$423 million.²¹² This funding mostly provides assistance for the heavy
13 duty and drayage truck sectors; however, some funding is reserved for light duty charging
14 infrastructure. Approximately \$200 million of this funding is being released in 2021-
15 2022, in addition to the \$197 million that was released in 2020-2021.²¹³

16 Finally, the federal government, through the passage of the Infrastructure Act in
17 September 2021, has appropriated funding for EV charging infrastructure investments in

²⁰⁷ Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013). This bill allocated funding for the CEC and CARB for vehicle emissions and GHG programs through fees associated with vehicle registration, smog abatement, and license plates, among other assorted fees.

²⁰⁸ “The 2021-22 Budget: Extension of AB 8 Fees and Funding Securitization for Zero-Emission Vehicle Infrastructure.” *Legislative Analyst’s Office*, February 16, 2021, (thereafter LAO 2021-22 Budget:AB8 fees) pp.7-11. Accessed at <https://lao.ca.gov/handouts/transportation/2021/The-2021-22-Budget%20Extension-of-AB-8-Fees-and-ZEV-021621.pdf>

²⁰⁹ LAO 2021-22 Budget: AB8 fees, p.15.

²¹⁰ “2020-2023 Investment Plan Update for the Clean Transportation Program.” California Energy Commission (CEC), Revised Lead Commissioner Report, September 2020 (CEC Investment Plan), Accessible at: <https://www.energy.ca.gov/filebrowser/download/2356>. p. 15.

²¹¹ LAO 2021-22 Budget: AB8 fees, pp.7-11.

²¹² “California Air Resources Board ZEV Action Plan.” *California Air Resources Board*, March 31,2021, p. 14. Retrieved from: https://static.business.ca.gov/wp-content/uploads/2021/03/CARB_ZEV-Action-Plan.pdf

²¹³ LAO 2021-22 Budget: AB8 fees, p.7.

1 travel corridors nationwide.²¹⁴ This will be administered through Title 23 of the United
2 States Code, which is specific to highway funding.²¹⁵ The federal investment totals \$7.5
3 billion over five years, beginning in 2022 with \$300 million.²¹⁶ It is currently unclear
4 how much will be directed to California’s travel corridors, but it should be considerable
5 given that one in eight Americans live in California.²¹⁷ These public investments will
6 bolster confidence in EV adoption and accelerate the pace of EV infrastructure through
7 increased access to EV charging infrastructure, all without increasing the rates of IOU
8 ratepayers.

9 As seen in Figure 1 below, PG&E’s electric rates have been climbing at a steady
10 pace since 2014, far surpassing inflation.

²¹⁴ Text - H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act. (2021, November 15). Accessed at: <https://www.congress.gov/bill/117th-congress/house-bill/3684/text>

²¹⁵ 23 U.S.C. § 151 (2022).

²¹⁶ 23 U.S.C. § 151 (2022).

²¹⁷ United States Census Bureau (2020). USA Facts-State and National Population. Accessed from: <https://usafacts.org/data/topics/people-society/population-and-demographics/population-data/population/>

Figure 1: Annual percentage change of PG&E Residential Rate and Consumer Price Index compared to 2014 levels.^{218 219}



Every effort should be made to ensure that EVC 2 funds are being spent appropriately to reduce the burden on ratepayers. The IOUs will continue to play a significant role in the development of a TE charging infrastructure market,²²⁰ however, ratepayer dollars should be targeted to specific sectors based on a strategic approach that ensures IOU programmatic efforts are supplementary and not duplicative of existing and planned EV charging infrastructure development efforts.²²¹ In July 2020 the CEC reported that 22,160 public L2 charger ports were currently operational in California.²²² As of December 31, 2021 the CEC reported 28,671 public L2 charger ports.²²³

²¹⁸ PG&E average residential rates from PG&E Advice Letter (AL) 4278-E-B, AL 4484-E-A, AL 4696-E-A, AL 4902-E-B, AL 5207-E, AL 5444-E, AL 5727-E, AL 6004-E-C, AL 6408-E, AL 6509-E-A for each year from 2014 to 2022. AL 6509-E-A contains PG&E's rate effective 3/1/2022.

²¹⁹ Consumer Price Index data taken from Bureau of Labor Statistics for Database of "All Urban Consumers (Current Series)", Accessed at: <https://www.bls.gov/cpi/data.htm>

²²⁰ "Transportation Electrification Framework Energy Division Staff Proposal." *California Public Utilities Commission*, filed February 3, 2020 (Draft TEF), p. 32. Accessed at <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M326/K281/326281940.PDF>.

²²¹ Draft TEF, p. 44.

²²² CEC SB 1000 Report, Appendix C-3.

²²³ Electric Vehicle Chargers in California, California Energy Commission, (February 2022), Accessed at <https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-infrastructure-statistics/electric-vehicle>.

1 Therefore, throughout the state, 6,500 public L2 charger ports had been installed in an
2 18-month period.

3 The Commission has an open proceeding to provide guidance for the design and
4 implementation of IOU EV charging infrastructure programs that should ensure that
5 ratepayer investments are supplementary to existing and planned EV charging
6 infrastructure development efforts. The Commission’s Energy Division produced the
7 draft Transportation Electrification Framework (TEF) that creates a statewide TE strategy
8 to prevent redundancies and to focus on setting, and meeting, priority target goals. The
9 TEF is designed to bring together regulatory agencies and the IOUs to develop a long-
10 term strategy to help meet our climate policy goals through a market wide strategy.²²⁴
11 The Commission has also issued D.21-07-028, the Near-Term Priorities decision. D.21-
12 07-028 provides a framework for near-term TE decision-making processes while the
13 Commission finalizes the TEF. D.21-07-028 sets immediate charging infrastructure
14 goals including: 1) providing charging needs for those who lack home charging access,
15 and 2) for new building construction.²²⁶ These goals identify primary barriers to
16 widespread adoption that include AB 841 PCs and low-income segments. D.21-07-028
17 focuses on “no regrets” short-term investments that will help to overcome persistent
18 barriers and find a way to increase EV adoption within demographic sectors that are
19 being left behind.

20 With the anticipated final TEF, PG&E’s proposed large infusion of ratepayer
21 funds into its five-year EVC 2 program is not prudent at this time. Rather, EVC 2 should
22 focus on the near-term priorities identified in D.21-07-028 until a more coordinated,
23 statewide, approach is approved by the Commission. Therefore, Cal Advocates
24 recommends the EVC 2 prioritize ports in MFH AB 841 PCs.

²²⁴ Draft TEF, pp.18-20.

²²⁵ California ZEV Market Development Strategy ZEV Pillar Priorities – Implementation, August 2021, pp. 1-2, Accessed at https://static.business.ca.gov/wp-content/uploads/2021/08/ZEV_Pillar_Priority.pdf

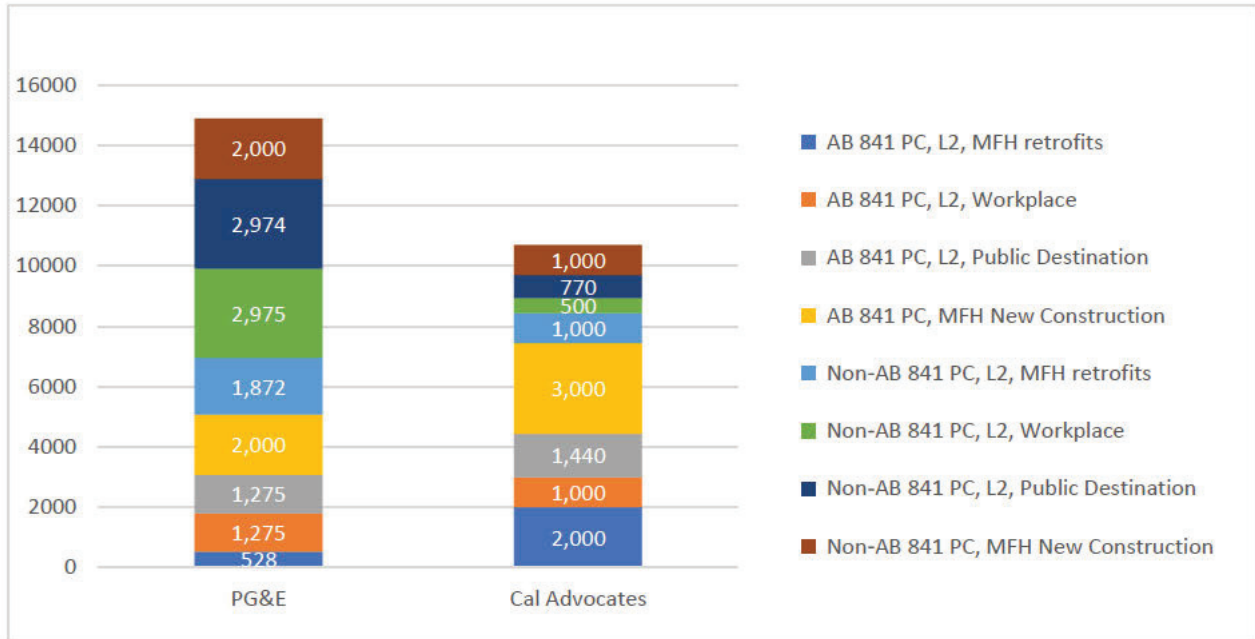
²²⁶ D. 21-07-028, p. 16.

To be more consistent with current priorities and specifically target the most prolific demographic barriers in the most efficacious way, Cal Advocates recommends the following allocation of ports within the MFH sector:

Table 10: Comparison of PG&E's and Cal Advocates proposed L2 port allocations for MFH

DESCRIPTION	PG&E	Cal Advocates
AB 841 PC, L2, MFH retrofits	528	2,000
AB 841 PC, L2, Workplace	1,275	1,000
AB 841 PC, L2, Public Destination	1,275	1,440
AB 841 PC, MFH New Construction	2,000	3,000
Non-AB 841 PC, L2, MFH retrofits	1,872	1,000
Non-AB 841 PC, L2, Workplace	2,975	500
Non-AB 841 PC, L2, Public Destination	2,974	770
Non-AB 841 PC, MFH New Construction	2,000	1,000
TOTAL PORT DEPLOYMENT	14,899	10,710

Figure 2: Comparison of PG&E and Cal Advocates proposed level 2 port allocations



B. The Commission should require PG&E to prioritize public destination ports over workplace ports in the EVC 2 program

PG&E’s EVC 2 proposal includes 8,500 L2 charging ports,²²⁷ evenly split between workplace and public destinations.²²⁸ PG&E should prioritize public destination ports over workplace ports in the EVC 2 program. Specifically, Cal Advocates recommends that 60% of shared chargers installed through the EVC 2 program be public destination ports and 40% be workplace ports. Cal Advocates applies this ratio to the reduced combined public destination and workplace ports recommended in Chapter 2, Section C of this testimony.

PG&E’s data response states its intention to target the public destination and workplace charging ports at a 50/50 ratio. The CEC Report, “Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment” (CEC AB 2127 Report), which

²²⁷ PG&E Testimony, p. 3-3.

²²⁸ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-002), Q9.

examines charging needs to support California’s 2030 electric vehicle goals, projected that 470,000 L2 ports are needed for public destinations and 327,000 L2 ports are needed for workplaces, closer to a 60/40 ratio.²²⁹ The IOUs are required to take the CEC AB 2127 Report into account when requesting an extension of existing TE programs, as PG&E proposes to do with its EVC 2 program.²³⁰ Table 11 illustrates the CEC’s recommendations for 2030 charging port deployment:

Table 11: Level 2 chargers projected by the CEC as needed to support intraregional travel for 8 million light-duty EVs in 2030 (in thousands)

Plug Type	CEC Staff Draft Report (January 2021)			CEC’s Final Report (July 2021)		
	Low	Average	High	Low	Average	High
MFH (L1 and L2)	258	287	316	265	330	395
Work	556	572	588	324	327	330
Public	600	617	635	466	470	474
All Level (1 and 2)	1414	1476	1539	1055	1127	1199

The Commission should require PG&E to follow the recommendations for port allocation specified in the CEC AB 2127 Report, as required by the Commission in D.21-07-028. Further, Cal Advocates recommends reduced numerical public destination and workplace port targets in Chapter 2, Section C, below.

²²⁹ “Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030.” California Energy Commission, July 2021 (CEC AB 2127 Report), p.34. Accessed at <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127>.

²³⁰ D. 21-07-028, pp. 25-26.

1 **C. The Commission should reduce the combined public destination**
2 **and workplace ports in the EVC 2 program**

3 PG&E’s EVC 2 proposal includes 8,500 L2 charging ports for combined
4 workplace and public destination locations.²³¹ Cal Advocates recommends that the total
5 combined public destination and workplace ports in EVC 2 be reduced to 3,710.²³² Table
6 11 above shows the CEC AB 2127 Report final recommendations for port deployment as
7 well as changes made between the draft CEC AB 2127 Report released in January 2021
8 and the final CEC AB 2127 Report adopted in July 2021. The final CEC AB 2127
9 Report recommendations for MFH ports are 14% higher than the staff initial
10 recommendation, while workplace ports are 43% lower, and public destination ports are
11 24% lower.²³³ These outcomes demonstrate the importance of the data and assumptions
12 used in the charging infrastructure assessment models. The final CEC AB 2127 Report
13 outcomes, based on data and assumptions that are informed by multiple EV industry
14 stakeholders, are very different from the CEC staff’s initial recommendations.²³⁴ The
15 final CEC AB 2127 Report includes improved vehicle attributes, changes in assumed
16 residential charging behavior, and changes in charging behavior away from home.²³⁵
17 PG&E’s total EVC 2 program public destination and workplace port deployment goals
18 should be more consistent with the final CEC AB 2127 Report recommendations.

19 Given the rapidly changing transportation electrification market, additional
20 research on public destination and workplace charging activities will likely be required
21 before it is appropriate to allocate substantial ratepayer funding for charging

²³¹ PG&E Testimony, p. 3-3.

²³² The term “combined,” as used in this testimony is a reference to the total quantity of ports targeted for both public destination and workplace locations. This should not be confused with the term “shared,” which is defined in footnote 236.

²³³ CEC AB 2127 Report, Table 7, p. 34. [The calculations were made using the average MUD (L1 and L2), Work (L2), and Public (L2) projections for the Staff Report and the Commission Report. The results conclude that the MUD ports increased by 14%, and the workplace ports contracted by 43%, and public ports contracted by 24%.]

²³⁴ CEC AB 2127 Report, p. 32.

²³⁵ CEC AB 2127 Report, Table 6, pp. 32-33: Comparison of EVI-Pro 2 draft and final AB 2127 analysis.

1 infrastructure in these sectors. The available data for shared private charging²³⁶
2 infrastructure deployment, including in workplaces and MFH, is imperfect.²³⁷ For
3 example, shared private charger data comes from a variety of sources, most of which
4 provide data on a voluntary basis.²³⁸ The U.S. Department of Energy provides access to
5 public charger counts only through the Alternative Fuels Data Center (AFDC).²³⁹
6 Electric vehicle service providers (EVSPs), developers, site hosts, and site owners are
7 encouraged to participate in quarterly CEC surveys, or report the information to the
8 National Renewable Energy Laboratories (NREL).²⁴⁰ Currently, no mandatory reporting
9 mechanism exists for reporting workplace or MFH shared charging ports, even though
10 shared private charger access contributes substantially to charging infrastructure needs.²⁴¹
11 The CEC AB 2127 Report includes reported public and shared private port deployment,
12 with public ports totaling 24,880, and the shared private ports totaling 39,201 as of
13 2020.²⁴² The reported shared private contribution is 63% greater than the public port

²³⁶ CEC's Electric Vehicles in California, Accessed at <https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-infrastructure-statistics/electric-vehicle>

Public chargers are located at parking space(s) designated by a property owner or lessee to be available to and accessible by the public.

Shared private chargers are located at parking space(s) designated by a property owner or lessee to be available to, and accessibly by, employees, tenants, visitors, and residents. Examples include workplaces and shared parking at a multifamily residence.

Private chargers are located at parking space(s) that are privately owned and operated, often dedicated for a specific driver or vehicle (for example, a charger installed in a garage of a single-family home).

²³⁷ CEC SB 1000 Report, p.31.

²³⁸ CEC SB 1000 Report, p.31.

²³⁹ "Alternative Fueling Station Counts by State." *United States Department of Energy*, Renewable Energy and Energy Efficiency, Alternative Fuels Data Center (AFDC), February 24, 2022. Accessed at <https://afdc.energy.gov/stations/states>.

²⁴⁰ CEC SB 1000 Report, p. 35.

²⁴¹ CEC SB 1000 Report, p. 31.

²⁴² CEC AB 2127 Report, p. 14.

1 contribution,²⁴³ not accounting for an unknown number of unreported shared private ports
2 in MFH and workplaces.²⁴⁴

3 Furthermore, few surveys have been conducted to determine charging behavior.
4 Among those completed, none provided an overall evaluation of how many EV adopters
5 outside of detached or attached single family homes are meeting their charging needs.²⁴⁵
6 Research in California indicates that early EV adopters predominantly reside in detached
7 single family homes (83%), with the remainder in attached single family homes (8%) and
8 apartments (9%). EV owners who live in apartments face challenges charging their
9 vehicles at home. The white paper “Quantifying the Electric Vehicle Charging
10 Infrastructure Gap Across U.S. Markets” released by the International Council on Clean
11 Transportation in January 2019 indicates that of EV owners who live in apartments, 18-
12 48% charged at home, compared to the home charging habits of single family detached
13 homes (84-94%) and homes attached with at most three other units (66-83%).^{246 247}
14 These data suggest the need for a greater emphasis on EV charging ports in MFH
15 compared to public destinations and workplaces. The CEC is currently assessing how to
16 utilize different tools and assumptions to evaluate charging behavior more effectively.²⁴⁸
17 The CEC Report “California Electric Vehicle Infrastructure Deployment Assessment:
18 Senate Bill 1000 Report” (CEC SB 1000 Report) uses the best available data to estimate

²⁴³ CEC AB 2127 Report, p. 14.

²⁴⁴ CEC SB 1000 Report, p. 31-32.

²⁴⁵ Quantifying EV Infrastructure, p. 8.

Tal, Gil, Kurani, Ken, Alan, Jenn, Chakraborty, Debapriya, Hardman, Scott, and Garas, Dahlia. “Electric Cars in California: Policy and Behavior Perspectives.” *Who’s Driving Electric Cars Understanding Consumer Adoption and Use of Plug-in Electric Cars*, 2020, Springer, pp. 18-19. Accessed at https://www.researchgate.net/profile/Debapriya-Chakraborty-2/publication/339979711_Electric_Cars_in_California_Policy_and_Behavior_Perspectives/links/61081cce0c2bfa282a1a1cc5/Electric-Cars-in-California-Policy-and-Behavior-Perspectives.pdf#page=20.

²⁴⁶ Quantifying EV Infrastructure, p. 9.

²⁴⁷ CEC SB 1000 Report, pp. 10-11.

²⁴⁸ CEC SB 1000 Report, (December 2020), pp. 34-35.

1 public charger distribution.²⁴⁹ Both the CEC SB 1000 Report and the CEC AB 2127
2 Report acknowledge the limitation in shared private charger data, and that it prohibits
3 accurate forecasting overall.^{250,251} Additional data should include random surveys of EV
4 adopters. This can help to breach difficult barriers for providing charging solutions for
5 MFH residents, especially those in AB 841 PCs.

6 Lastly, Commissioner Clifford Rechtschaffen recently issued an Energy Division
7 staff proposal (staff proposal) in R.18-12-006 to establish new TE Funding Cycles.²⁵²
8 The staff proposal responds to stakeholder comments and EV market developments since
9 the issuance of the draft TEF and proposes modifications to TE funding through 2030 and
10 beyond. In the staff proposal, Energy Division Staff propose “ending incentives for
11 workplace charging BTM”²⁵³ for Funding Cycle 1, which is 2025 onward, thereby
12 signaling a motivation to move away from subsidizing workplace charging installations.

13 In conclusion, Cal Advocates, recommends the allocation of ports in Table 12 for
14 PG&E’s EVC 2 public destination and workplace charging sectors based on available
15 data.

²⁴⁹ CEC SB 1000 Report, (December 30, 2020). p. 7.

²⁵⁰ CEC SB 1000 Report, pp. 31-32

²⁵¹ CEC AB 2127 Report, p. 18

²⁵² *Assigned Commissioner’s Ruling Adding Staff Proposal to the Record and Inviting Party Comments*.
February 25, 2022. (R.18-12-006)

²⁵³ Energy Division Staff Proposal to Establish Transportation Electrification Funding Cycles and Behind-
the-Meter Program, p. 20. Accessed:
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M453/K952/453952700.PDF>

Table 12: Comparison of PG&E's and Cal Advocates proposed ports for public destinations and workplaces

Description	PG&E Proposed Port Deployment	Cal Advocates Proposed Port Deployment
AB 841 PC Public Destinations	2,550 ports not specifically allocated between public destinations and workplaces: potential target 50/50 split	1,440 ports
AB 841 PC Workplaces		1,000 ports
Non-AB 841 PC Public Destinations	5,949 ports not specifically allocated between public destinations and workplaces: potential target 50/50 split	770 ports
Non-AB 841 Workplaces		500 ports

D. The Commission should deny the DCFC element of PG&E's application

PG&E proposes to deploy 1,100 DCFC ports through the EVC 2 program. PG&E's data response asserts that the 1,100 DCFCs are necessary to meet the forecasted deficiencies highlighted in the CEC AB 2127.²⁵⁴ Cal Advocates recommends that the DCFC element of PG&E's application be denied in its entirety as unnecessary because it is duplicative of considerable ongoing DCFC installation activities, including through existing PG&E administered programs.

PG&E states in its data response, its intention to deploy 187 DCFC ports through the end of 2025 and the remainder of the 1100 DCFC ports between 2025 and 2028.²⁵⁵ PG&E proposes to install all DCFC ports in AB 841 PCs. PG&E claims that including DCFC ports in AB 841 PCs will provide charging opportunities to low-income

²⁵⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q4.

²⁵⁵ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q4: 187 DCFC chargers is reflective of 43% of the 430 remaining chargers necessary to achieve the 2025 goal of 10,000 DCFC chargers per AB2127 assessment.

1 residents.²⁵⁶ There is little evidence that deploying DCFC chargers in AB 841 PCs areas
2 is an effective means of encouraging new EV adoption.²⁵⁷ Fifty-seven percent of DCFC
3 ports are currently located in AB 841 PCs.²⁵⁸ In addition, PG&E has only deployed 16 of
4 the 234 DCFC ports through its EV Fast Charge program which was approved in May
5 2018.²⁵⁹ The EV Fast Charge program has low deployment numbers and raises doubts
6 about PG&E's ability to effectively deploy the remaining 218 chargers approved for that
7 program in addition to the 187 new chargers planned for EVC 2 by 2025.²⁶⁰ The low
8 deployment numbers are despite PG&E's claim that it leveraged "lessons learned" and
9 used EVSPs as a liaison between the customer and the IOU when engaging in customer
10 and site selection criteria for the EV Fast Charge program.²⁶¹ The lack of evidence
11 demonstrating the efficacy of DCFC deployment of EV chargers to encourage EV
12 adoption, especially in AB 841 PCs, combined with the slow deployment rate
13 demonstrated to-date by PG&E's EV Fast Charge program are compelling reasons for
14 excluding DCFC's from EVC 2.

15 The 6,695 public DCFC ports and 463 shared private DCFC ports deployed
16 statewide as of December 31, 2021 includes only a few DCFCs installed through IOU
17 programs.²⁶² The CEC's "Electric Vehicle Chargers in California" website provides
18 updated numbers for DCFC deployment which are illustrative of the market's success in
19 DCFC deployment.²⁶³ As of December 31, 2021, 7,158 public and shared private DCFC

²⁵⁶ PG&E Testimony, pp. 2-5, 3-11, and 3-12.

²⁵⁷ CEC SB 1000 Report, p.30.

²⁵⁸ CEC SB 1000 Report, p.30.

²⁵⁹ PG&E Program Advisory Council (PAC) Meeting, Q4, 2021, Slide 9.

²⁶⁰ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-003), Q4.

²⁶¹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q6(b).

²⁶² Electric Vehicle Chargers in California, California Energy Commission (thereafter CEC EV Chargers in California), accessed February 2022 at <https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-infrastructure-statistics/electric-vehicle>.

²⁶³ CEC EV Chargers in California.

1 ports had been reported.²⁶⁴ In July, 2020 the CEC reported that 4,493 public DCFC
2 chargers had been deployed. In December 2021 public DCFC chargers alone totaled
3 6,695 ports.²⁶⁵ Therefore, according to CEC data, 2,202 public DCFC ports were added
4 in California in 18 months.

5 Many private entities such as Tesla, EVgo, Chargepoint, and publicly funded
6 programs through the CEC and CARB have installed DCFC ports.²⁶⁶ The increased state
7 and federal funding approved in FY 2021-2022 has started to be distributed. The next
8 three years of public funding will invest approximately \$2 billion into the EV market
9 specifically to fund charging infrastructure, including \$1 billion in light duty charging
10 infrastructure.^{267 268} The appropriated spending on EV charging infrastructure with
11 federal funds through the Infrastructure Act²⁶⁹ will primarily focus on DCFC chargers
12 throughout travel corridors across the country.²⁷⁰ This funding is in addition to the
13 approved IOU programs that are in progress. Clearly, mechanisms exist to deploy DCFC
14 chargers without IOU ratepayer assistance. Using ratepayer funding for additional DCFC
15 ports is not only imprudent, but also unnecessary.

²⁶⁴ CEC EV Chargers in California.

²⁶⁵ CEC SB 1000 Report, Appendix C-3.

²⁶⁶ "National Plug-In Electric Vehicle Infrastructure Analysis." *United States Department of Energy*, Office of Energy Efficiency and Renewable Energy, September 2017, pp. 2-3. Accessed at: <https://www.nrel.gov/docs/fy17osti/69031.pdf>

²⁶⁷ "The 2021-22 California Spending Plan Natural Resources and Environmental Protection, Zero Emissions Vehicle Package." *Legislative Analyst's Office*, October 18, 2021, Accessed at: <https://lao.ca.gov/Publications/Report/4463>

²⁶⁸ "Governor Newsom Outlines Historic \$10 Billion Zero-Emission Vehicle Package to Lead the World's Transition to Clean Energy, Combat Climate Change." *Office of Governor Gavin Newsom*. January 26, 2022. Accessed at: <https://www.gov.ca.gov/2022/01/26/governor-newsom-outlines-historic-10-billion-zero-emission-vehicle-package-to-lead-the-worlds-transition-to-clean-energy-combat-climate-change/>

²⁶⁹ Text - H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act. (2021, November 15). Accessed at: <https://www.congress.gov/bill/117th-congress/house-bill/3684/text>

²⁷⁰ 23 U.S.C. § 151 (2022).

1 The evidence is clear that DCFC port procurement is on track to meet state goals. The
2 Governor’s Executive Order B-18-48 goal²⁷¹ of reaching 10,000 public DCFC ports by
3 2025 is only short by 430 ports.²⁷² The currently installed and planned ports total 9,570
4 public and shared private DCFC ports, including all IOU approved, but not yet installed,
5 ports.²⁷³ The national deployment of DCFC chargers grew by 10.8% in the fourth quarter
6 of 2020 alone.²⁷⁴ The market will likely find a way to reach the estimated goal of 30,600
7 DCFC chargers by 2030^{275,276} without further assistance from the IOU’s.²⁷⁷ IOU funding
8 should be used where it can benefit ratepayers the most, such as addressing L2 port
9 deployment shortages in AB841 PCs.^{278,279}

10 As discussed earlier, PG&E claims that it plans to deploy all 1,100 DCFC chargers
11 in public destinations situated within AB 841 PCs so that they are accessible to MFH
12 residents.²⁸⁰ PG&E’s conclusion is not represented by the data. In fact, many DCFC
13 charging ports are located within AB 841 PCs by chance, due to the ports being situated

²⁷¹Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments (January 26, 2018). Accessed at: Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments | Governor Edmund G. Brown Jr. (ca.gov).

²⁷² CEC AB 2127 Report, p. 14.

²⁷³ CEC AB 2127 Report, p. 14.

²⁷⁴ "Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator: Fourth Quarter 2020." National Renewable Energy Laboratory, June 2021, p. 6. Accessed at: <https://www.nrel.gov/docs/fy21osti/80120.pdf>

²⁷⁵ CEC AB 2127 Report, p. 34. The 30,600 DCFC charger ports comes from Table 7 of Chapter 3 of the AB 2127 Report. It is the number included in the final Commission’s reported DCFC charging plugs necessary for 8 million light duty EVs by 2030.

²⁷⁶ "Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator: Fourth Quarter 2020." National Renewable Energy Laboratory, June 2021, p. 7. Accessed at: <https://www.nrel.gov/docs/fy21osti/80120.pdf>. [With the nationwide public DCFC port growth increasing in Q1, 2020 by 10.6%, Q2, 2020 by 6.8%, Q3, 2020 by 8.4%, and Q4, 2020 by 10.8% it should be extrapolated that the market will accomplish the 30,600 DCFC ports needed by 2030 in California.]

²⁷⁷ PG&E’s Q4, 2021 PAC Meeting shows stagnant growth for EV Fast Charge. The entire program has deployed 16 ports since its inception with D.18-05-040.

²⁷⁸ CEC AB 2127 Report, pp. 15-17.

²⁷⁹ CEC SB 1000 Report, pp. 6-8.

²⁸⁰ PG&E Testimony. pp. 3-12-3-13.

1 along busy travel corridors.²⁸¹ The CEC’s analysis concludes that DCFC ports are
2 distributed somewhat disproportionately in favor of AB 841 PCs.²⁸² Despite having over
3 half the deployed public DCFC chargers, EV adoption is very low in MFH
4 communities,²⁸³ which is comprised primarily of low-income and AB 841 PC
5 residents.²⁸⁴ Customers prefer to charge their vehicles at home if that is an available
6 option, but home charging isn’t always possible for MFH residents.^{285, 286}

7 PG&E’s analysis mischaracterizes the use of DCFCs as the primary charging
8 solution for MFH residents.²⁸⁷ The UCLA Luskin study referred to in PG&E’s
9 Testimony was based on a survey administered to MFH users of EVgo’s charging
10 stations,²⁸⁸ which might not be a representative sample and could be influenced by self-
11 selection bias.

12 Public destination L2 charging infrastructure is deployed at a lower rate in low-
13 income and AB 841 PCs. The EVC 2 program should focus only on L2 charging options
14 in MFH and AB 841 PCs. The Commission should not authorize PG&E to deploy DCFC
15 charging infrastructure through the EVC 2 program.

16 **II. CONCLUSION**

17 In conclusion, PG&E’s EVC 2 program inadequately targets port installations in
18 MFH, especially in AB 841 PCs. In addition, the DCFC component of EVC 2 is

²⁸¹ CEC SB 1000 Report, pp. 29-30.

²⁸² CEC SB 1000 Report, pp. 29-30.

²⁸³ Quantifying EV Infrastructure, p. 8.

²⁸⁴ CEC SB 1000 Report, p. 10.

²⁸⁵ CEC SB 1000 Report, pp. 10-11.

²⁸⁶ PG&E Testimony, p. 3-4.

²⁸⁷ PG&E Testimony, p. 3-11.

²⁸⁸ DeShazo, J.R., James Di Filippo, "Evaluating Multi-Unit Resident Charging Behavior at Direct Current Fast Chargers." University of California Los Angeles Luskin Center for Innovation, February 2021, pp. 8-9. Accessed at <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf>

1 duplicative of an existing PG&E program – EV Fast Charge, which is struggling to
2 construct ports, staying static at 16 ports installed between Q3 and Q4 of 2021.²⁸⁹ Cal
3 Advocates recommends a higher allocation of ports to MFH customers, and lower
4 allocation to Public Destination and Workplace customers, and a complete removal of the
5 DCFC component.

²⁸⁹ PG&E Q4, 2021 PAC Meeting, Slide 9.

CHAPTER 3 : PROGRAM IMPLEMENTATION DETAILS

(Witness: Alan Bach, David Matthews, Arthur Tseng)

I. INTRODUCTION

The purpose of this chapter is to provide analysis and recommendations on program details.

II. DISCUSSION

A. The Commission should require PG&E to clarify that its new EVC 2 subaccount will exclude “To-the-Meter” costs

PG&E proposes to create a new subaccount within its TE Balancing Account for EVC 2. PG&E should clarify that its new EVC 2 subaccount will exclude TTM electrical infrastructure costs, as those costs are now tracked under PG&E’s Electric Tariff Rule 29 (Rule 29) rather than within TE program accounts, as has historically been the case.²⁹⁰ PG&E’s current description of the EVC 2 subaccount implies that it will already exclude TTM infrastructure costs.²⁹¹ However, the exclusion of TTM infrastructure costs is not explicit. This lack of clarity could create an opportunity for PG&E to double collect FTM infrastructure costs in both the EVC 2 subaccount and through Rule 29.

To add clarity to PG&E’s EVC 2 subaccount and avoid possible double collection of TTM costs, Cal Advocates recommends the Commission direct PG&E to revise the language of its EVC 2 Subaccount to:²⁹²

Pursuant to Decision (D.) XX-XX-XXX, PG&E is authorized to recover a revenue requirement associated with up to \$XXX in capital and expense, including but not limited to rebates and ME&O costs for the EVC 2 program, but excluding any costs associated with electrical infrastructure covered under PG&E’s Electric Tariff Rule 29.

²⁹⁰ PG&E’s Electric Rule 29 was approved with modifications by Commission Resolution E-5167, and filed by PG&E in AL 6424-E.

²⁹¹ PG&E Testimony, Chapter 8, Appendix B, p. 12. Note that the \$276 million requested by PG&E to recover in the subaccount is equal to the budget PG&E proposes excluding TTM costs.

²⁹² PG&E Testimony, Chapter 8, Appendix B, p. 12. The non-underlined text is PG&E’s proposed language, and the underline portion is Cal Advocates’ recommended changes to PG&E’s language.

1 **B. The Commission should require PG&E to apply a minimum**
2 **10% cost share savings for ALM**

3 PG&E's current ALM proposal would provide program participants a cost saving
4 based on PG&E's proposed the cost sharing between PG&E and the site for the overall
5 EV infrastructure.²⁹³ Since PG&E's proposal would have PG&E share 80% to 100% of
6 the EV infrastructure costs depending on customer segment,²⁹⁴ the site (and its
7 customers) would receive 0-20% of the cost savings produced by ALM. For example, if
8 a site is located in a workplace or public destination in an AB 841 PC, PG&E's proposal
9 currently requires a site to cover at least 10% of BTM costs.^{295,296} If a workplace site in
10 an AB 841 PC can reduce costs by \$1,000 per port by implementing ALM, the site will
11 save \$100 per port due to ALM, as they would no longer have to pay for 10% of the
12 \$1,000 per port costs that no longer exist.²⁹⁷

13 PG&E proposes to cover 100% of costs for MFH in AB 841 PCs, which would
14 result in this customer segment always receiving \$0 for implementing ALM. This gives
15 MFHs in AB 841 PCs no incentive to implement ALM, when ALM could provide cost
16 savings to both the site and to ratepayers.²⁹⁸

17 To rectify this issue, Cal Advocates recommends that PG&E provide a minimum
18 of 10% cost share savings from ALM, that is, if ALM saves \$1,000 per port, PG&E
19 should provide an incentive that is, at minimum, \$100 per port to the site. This would
20 give MFHs in AB 841 PCs an incentive to implement ALM at the same level of
21 incentives for MFHs in non-AB 841 PCs.²⁹⁹

²⁹³ PG&E Testimony, p. 5-2.

²⁹⁴ PG&E Testimony, p. 3-3, Table 3-1.

²⁹⁵ PG&E Testimony, p. 3-4.

²⁹⁶ PG&E Testimony, p. 3-4.

²⁹⁷ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q15.

²⁹⁸ PG&E Testimony, p. 5-2.

²⁹⁹ PG&E Testimony, Table 3-1, p. 3-3. Per Cal Advocates' recommendation for declining rebates in Chapter 1 Section E above, the incentive level for MFHs in AB 841 PCs would only be the same for MFHs in non-AB 841 PCs initially, and would diverge over time.

1 Further, PG&E’s proposal does not provide any data supporting why a cost share
2 savings of 0-20% is sufficient to incentivize sites to utilize ALM. While having a low
3 incentive means that more savings will be passed onto ratepayers, Cal Advocates is
4 concerned that if the incentive is too low, sites will not utilize ALM, which benefits no
5 party. Cal Advocates recommends that PG&E be required to update its TE program
6 advisory council (PAC) on ALM cost share savings incentives. If PG&E finds that there
7 are few to no sites opting for ALM, PG&E should, after consultation with its PAC, file a
8 Tier 2 advice letter to request an upward adjustment of the minimum cost share savings
9 incentive, not to exceed 50% of the total cost savings.

10 **C. The Commission should deny PG&E’s request to test Vehicle-to-**
11 **Anything (V2X) technology in the EVC 2 program**

12 PG&E proposes to incorporate bidirectional EVSE technology such as V2X
13 elements into the EVC 2 program.³⁰⁰ Cal Advocates opposes testing bidirectional EVSE
14 technologies in a utility TE program such as EVC 2. PG&E states that V2X is a
15 technology that’s still going through market maturation.³⁰¹ It is therefore more
16 appropriate to test V2X in either a separately filed TE pilot or within the Electric
17 Program Investment Charge (EPIC) program which is administered by the CEC. Since
18 V2X technologies are nascent and the creation of new technology is inherently risky,³⁰²
19 Cal Advocates is concerned that participating customers can be exposed to operation and
20 maintenance or warranty risks or unnecessary costs if V2X technology manufacturers go
21 out of business. Ratepayers should not subsidize assets that have a high risk of being
22 stranded. For this reason, Cal Advocates recommends the Commission deny PG&E’s
23 request to test V2X technology in PG&E’s EVC 2 program.

³⁰⁰ PG&E Testimony, p. 5-5, lines 4-5.

³⁰¹ PG&E Testimony, p. 5-5, line 6.

³⁰² Giles, Margarete, “Steer Clear of Electric Vehicle Startups?”, *Morningstar*, August 12, 2021. “Overall, a company attempting to create a new technology that has never been commercialized is riskier than a new entrant into an already existing market.” Accessible at:

<https://www.morningstar.com/articles/1053551/steer-clear-of-electric-vehicle-startups>

1 **D. The Commission should limit PG&E’s BTM infrastructure**
2 **ownership to 50% without options to increase**

3 PG&E proposes to file a Tier 2 advice letter to waive the constraint that limits
4 utility ownership to 50 percent of BTM infrastructure in AB 841 PCs.³⁰³ PG&E asserts
5 that customer satisfaction may diminish with the larger cost and technical complexities
6 customers must bear when PG&E is not permitted to offer a turnkey utility-owned
7 solution.³⁰⁴ PG&E also alludes to strong demand for the utility ownership option in
8 EVCN as a reason for removing the utility ownership limitations.³⁰⁵ Cal Advocates does
9 not agree with PG&E on this matter and is opposed to allowing PG&E to file an advice
10 letter to waive the utility ownership constraint.

11 First, PG&E is already resolving cost and technical complexities faced by
12 customers in EVC 2. For example, PG&E is “actively exploring alternative financing
13 options that would serve to lower up-front cost burden on customers,”³⁰⁶ it also “plans to
14 offer third party EVSP sponsorship models where a third party EVSP can operate and
15 maintain EVSEs, having demonstrated success at least through the contract signing stage
16 with the Fast Charge and Fleet programs under this model.”³⁰⁷ Therefore, cost and
17 technical complexity concerns would be reduced in this program and customer/site host
18 ownership of the behind-the-meter infrastructure will be competitive, as is required by
19 D.21-07-028.³⁰⁸

20 PG&E’s argument regarding strong customer demand for utility ownership³⁰⁹ is
21 flawed. When given the choice of only two options in EVCN – either the turnkey utility
22 ownership option, or the customer ownership option requiring more involvement from

³⁰³ PG&E Testimony, p. 2-4, line 5.

³⁰⁴ PG&E Testimony, p. 2-3, line 28.

³⁰⁵ PG&E Testimony, p. 2-3, line 18.

³⁰⁶ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-004), Q2.

³⁰⁷ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-004), Q2.

³⁰⁸ D.21-07-028, p. 27.

³⁰⁹ PG&E Testimony, p. 2-3, lines 18-19.

1 customers, many customers chose the utility owned option. This seems to be reflected in
2 the EVCN participant survey, showing more preference for an option where PG&E
3 manages the entire installation process (equivalent to the turnkey utility ownership
4 option), rather than an option where PG&E manages the installation process except for
5 the charger themselves (equivalent to the customer ownership option).³¹⁰ However,
6 respondents do not have a strong preference for PG&E or a third-party EV service
7 provider to manage the entire installation process.³¹¹ Therefore, it is indicative that
8 customers who chose the utility ownership option in EVCN didn't necessarily do so
9 because they prefer the utility to own the BTM infrastructure per se, but rather that
10 customers simply wanted more technical assistance. In particular, a respondent to the
11 EVCN survey wrote that "We don't know anything about technical drawings, hardware
12 specs ... Someone needs to handhold us ... We want you to take the lead and tell us what
13 can and can't be done and give us a few options."³¹² PG&E claims to be learning from its
14 other TE programs, improving ME&O, and offering a third-party sponsorship model, and
15 thus, customer demand for the utility ownership option is not firmly established.³¹³
16 Rather than change the BTM infrastructure ownership limitations via a Tier 2 advice
17 letter, if PG&E encounters a high demand for greater technical assistance or lower cost
18 option to construct ports at MFH in AB 841 PCs the Commission should require PG&E
19 to refer customers to the CEC's new \$300m fund for "Equitable At-Home Charging,"
20 proposed as part of the Governor's 2022-2023 budget.³¹⁴ Since there are other avenues

³¹⁰ In the EVCN survey, respondents were asked to rank from 1 to 5 their preferences for different project management options. Summing up the respondent scores, a lower score indicates more preference on average. The turnkey utility ownership option had a score of 91, compared to 116 for the customer ownership option.

³¹¹ The option for third party EV service provider to manage the project had a score of 89, compared to 91 for the turnkey utility ownership option.

³¹² PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-002), Q1. PG&E EVCN Participant Survey Results, Survey_ID 12600 response to question D8.

³¹³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-004), Q2.

³¹⁴ Governor's Budget Summary - 2022-23, "Climate Change" chapter. Accessed at <https://www.ebudget.ca.gov/2022-23/pdf/BudgetSummary/ClimateChange.pdf>

1 for MFH sites to receive funding for chargers, PG&E's ratepayers should not have to
2 duplicate existing funding.

3 Second, PG&E ownership increases capital expenditure, which unnecessarily
4 increases rates. For EVC 2, ratepayers compensate PG&E capital expenditure at a 2:1
5 ratio, which means that over the cost recovery period, ratepayers end up paying PG&E \$2
6 for every \$1 that PG&E spends.³¹⁵ In contrast, the ratio for expense expenditure, such as
7 incentives and rebates for the customer ownership model, is 1:1.³¹⁶ To protect ratepayers,
8 EVC 2 must minimize utility ownership option.

9 Allowing PG&E to file an advice letter to request waiver from the 50 percent
10 requirement effectively renders the requirement meaningless. In addition, there is no
11 firm quantitative criteria for the utilities to meet to qualify for filing the waiver, other
12 than a request from the Commission to demonstrate the steps the utility has taken to offer
13 the customer ownership option, the lack of customer interest, and the resulting impact on
14 the program.³¹⁷ Therefore, Cal Advocates strongly opposes allowing PG&E to exceed
15 the BTM 50% infrastructure ownership limit.

16 Ultimately, if the Commission finds it acceptable for PG&E to file a waiver to
17 increase its ownership cap, Cal Advocates strongly recommend that quantifiable metrics
18 be met before PG&E can do so. For example, PG&E should show that by the midpoint
19 of the program implementation time period, there are not enough applicants for the third-
20 party ownership or customer ownership options to hit port count targets in AB 841 PCs
21 by the end of the program. Consequently, at that point, PG&E should be allowed to file a
22 Tier 3 advice letter to request a waiver of the ownership cap.

23 On the topic of infrastructure buildout, to prevent infrastructure from being
24 underutilized, reduce frivolous spending with limited potential in driving EV adoption,

³¹⁵ PG&E Workpapers, Atch 01, worksheet "RO", line 32 shows revenue requirement for capital expenditure sums to \$185m, compared to capital expenditure of \$94.5m (worksheet "Inputs", row 14)

³¹⁶ PG&E Workpapers, Atch 01, worksheet "RO", line 33 shows revenue requirement for expenses is \$181m, compared to expenditure of \$180m (worksheet "Inputs", row 79).

³¹⁷ D.21-07-028, p. 78.

1 and reduce bill impacts to ratepayers, EVC 2 should only incentivize retrofitting
2 customers to build ports matching the new construction CALGreen code. This
3 corresponds to 10% of parking spots for MFH sites, and 6% of parking spots for non-
4 residential sites.³¹⁸ The Commission’s extensive experience monitoring IOU energy
5 efficiency programs reveals that it is not uncommon for customers to enroll into
6 programs and receive financial assistance without a demonstrable need for such
7 assistance.³¹⁹ Commission policy should not allow sites to construct as many ratepayer
8 subsidized ports as they desire, because it could in fact be over-subsidizing program
9 participants and could lead to underutilized assets. With EV purchases becoming more
10 common, the IOUs’ role in TE is to facilitate port installation at many locations, and not
11 to support every vehicle’s transition to electrification at a few locations. Cal Advocates
12 propose that customers should be given the opportunity to construct more ports if they are
13 willing to pay the incremental cost, i.e. sites that propose to install more ports won’t be
14 automatically excluded from the program.

15 For SCE’s Charge Ready 2 program, Cal Advocates advocated for a higher
16 minimum port per site.³²⁰ However, the market three years ago was less mature, and Cal
17 Advocates encouraged installing ports cost effectively. EV purchases are becoming more
18 common and cost expenditure for public programs need to evolve to focus on driving EV
19 adoption at many locations equitably and less focused on purely constructing more
20 chargers. To achieve this goal, existing sites should be retrofitted to meet CALGreen

³¹⁸ Title 24, Part 11, Chapter 4, Sections 4.106.4.2 and 4.106.4.3.1 of the California Code of Regulations.

³¹⁹ CPUC Energy Efficiency Policy Manual, Version 6, published April 2020. p. 27. “Net-to-Gross ratios are used to estimate and describe the ‘free ridership’ that may be occurring within energy efficiency programs... customers would have installed the program measure or equipment even without the financial incentives provided by the program. Cost effectiveness of the portfolio shall be calculated as net of free riders, or on a ‘net savings basis’ for the purpose of establishing budget levels that meets the legislative requirements.” Accessed: <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/6442465683-eeppolicymanualrevised-march-20-2020-b.pdf>.

³²⁰ *Cal Advocates Testimony on Southern California Edison Company’s Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs* to A.18-06-015 Application of Southern California Edison Company (U338E) for Approval of its Charge Ready 2 Infrastructure and Market Education Programs, p. 1-7.

1 codes for new construction, and EVC 2 should not encourage “free-riders” that would
2 take advantage of ratepayer subsidies to install more chargers than what is warranted.

3 **E. The Commission should require PG&E to further refine EVC**
4 **2’s equity programs and to increase collaboration with CBOs**

5 PG&E currently proposes to give higher incentives to customers in AB 841 PCs,
6 except for new construction. Cal Advocates recommends that the Commission establish
7 safeguards to ensure that customers receiving higher incentives truly require such
8 funding. PG&E does not propose to develop community mobility plans. Cal Advocates
9 recommends that PG&E develop community mobility plans to provide program benefits
10 to AB 841 PCs. Considering escalation and contingency, this would increase the Equity
11 Initiatives budget from \$4.48 million³²¹ to \$4.85 million. PG&E did not explicitly
12 propose to design their Site Prioritization Tool to give higher priority to customers
13 meeting more equity criteria. Cal Advocates recommends that PG&E incorporate this
14 design to target transportation electrification in communities with the most need.
15 Increasingly gentrification is occurring whereby luxury apartment buildings are built in
16 the heart of AB 841 PCs. For example, four new construction apartment buildings are
17 recently built in Oakland in sites categorized as AB 841 Prioritized Community – Anton
18 Edge, Forma, Vespr and Lydian.³²² For a two-bedroom apartment at those buildings, the
19 rental price range from \$3,530 to \$10,995.³²³ For reference, the Fair Market Rent in
20 Oakland-Fremont metropolitan area is \$2,274 – this means that the cheapest new t
21 bedroom apartment is still more than 55% more expensive than what the 40th percentile
22 of recent movers in the local community pays.³²⁴ Many of these newer and more

³²¹ PG&E Testimony, p. 6-23, Table 6-4.

³²² Apartmentguide, searching for New Construction in Oakland. Accessed 2/14/2022:
<https://www.apartmentguide.com/apartments/California/Oakland/new-construction-4nj/>

³²³ FORMA rent for 2X2 and 2X2 Penthouse apartments. Accessed 2/24/2022:
<https://www.hollandresidential.com/ca/oakland/forma/availability/>

³²⁴ ”The FY 2022 FMRs for All Bedroom Sizes.”, *FY 2022 Fair Market Rent Documentation System*, US Department of Housing and Urban Development. Accessed 2/14/2022 at:
https://www.huduser.gov/portal/datasets/fmr/fmrs/FY2022_code/2022summary.odn

1 luxurious buildings advertise EV charging as an amenity, to attract potentially higher
2 income renters.³²⁵ Cal Advocates recommends that the Commission add an eligibility
3 criterion for properties receiving equity funding to ensure that the benefits of higher-
4 incentives flow to the intended, lower-income, MFH residents. Cal Advocates suggests
5 that the median rent in a MFH must be below Fair Market Rent as defined by the US
6 Department of Housing and Urban Development,³²⁶ or require that the median resident
7 income must be at or below 400% of Federal Poverty Level. By definition, 40% of
8 residents within a city or county pay rent at or below the Fair Market Rent. Therefore,
9 approximately 40% of PG&E’s customers are eligible under this criterion and this
10 criterion is not overly restrictive. Similarly, Commission staff signaled a desire to
11 provide higher rebates for Multi-Unit Dwellings (referred to as MFH in this testimony)
12 “with a majority of residents who are low-income.”³²⁷ Cal Advocates’ recommendation is
13 consistent with AB 841 in that the added criteria would narrow down the targeted equity
14 customers to those that will benefit more from the additional assistance. The added
15 criteria would not conflict with the AB 841 definition of an underserved community. To
16 ensure that higher incentives in AB 841 PCs flow to the intended MFH residents, the
17 Commission should require PG&E to convene a workshop, to which relevant
18 stakeholders and CBO are invited, to discuss refinements to the eligibility criteria for
19 properties receiving equity funding, such as the ones suggested above. PG&E should be
20 required to file a Tier 2 advice letter following the workshop proposing eligibility

³²⁵ For example, Webster Eleven is a recent development in Oakland in a census tract with CalEnviroScreen 4.0 score of 91%. However, it is marketed as a luxury apartment with EV charging as an amenity. Accessed 2/24/2022, a two-bedroom apartment at Webster Eleven starts at \$3,490/month according to: <https://www.apartments.com/webster-eleven-oakland-ca/9p808r5/>

³²⁶ “Fair Market Rents (40th Percentile Rents)”, *Office of Policy Development and Research*, US Department of Housing and Urban Development. Accessible at: <https://www.huduser.gov/portal/datasets/fmr.html>

³²⁷ Energy Division Staff Proposal to Establish Transportation Electrification Funding Cycles and Statewide Behind-the-Meter Program, p.19. Filed 2/25/2022 to service list R.18-12-006: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M453/K952/453952700.PDF>

refinements that ensures equity funds are appropriately targeted while not unduly burdening program participants.

Referencing CARB’s Low-Income Barrier Study, the first priority recommendation is to expand assessments of low-income resident transportation and mobility needs to ensure feedback is incorporated in transportation planning.³²⁸ PG&E needs to make a bigger effort to perform community needs surveys to understand where the chargers would provide the most benefit to the community, whether it be DCFCs in public destinations or L2 chargers in other locations, or whether other equity projects like carshare would be more beneficial. Instead of one-off projects where individual sites apply to receive incentives from PG&E, Cal Advocates recommend a higher proportion of the ME&O expenditure be allocated to CBOs to develop holistic mobility plans for communities and allow the infrastructure build-out in EVC 2 to address zero-emission transportation infrastructure needs that are identified. From this expenditure, Cal Advocates recommend that CBOs perform a minimum of five holistic mobility plans for AB 841 PCs for each of the five PG&E service areas once during the first year after program approval, and once midway through the program, same as the implementation timeline of the Focus Groups.³²⁹ Cal Advocates propose that the budget for the holistic mobility plans be approximated as the same as the Focus Groups, which is \$6,500 per session.³³⁰ The cost for 25 mobility plans is \$162,500. If these costs were added at the same time as the Focus Groups (once during program start, once midway), considering the same escalation and contingency applied to other Equity Initiatives, the total cost of the plans is \$375,800. This raises the Equity Initiatives total cost from \$4.48M to \$4.85M.

³²⁸ “Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents”, *California Air Resources Board*, February 21, 2018, p. 51. Accessed: https://ww2.arb.ca.gov/sites/default/files/2018-08/sb350_final_guidance_document_022118.pdf

³²⁹ PG&E Testimony, p. 6-19, lines 2-3.

³³⁰ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q8iii.

1 In response to discovery, PG&E informed Cal Advocates that the EVC 2 Site
2 Prioritization Tool can be designed to “incrementally score sites that have multiple AB
3 841 PC qualifications higher than sites that have only one AB 841 PC qualifications.
4 This incremental score will be added to other score criteria such as community support or
5 opposition, utilization potential, and costs, among others.”³³¹ Cal Advocates supports
6 tools that can ensure that ratepayer funds are spent in a manner that supports equitable
7 EV adoption while limiting incentives for program free riders. Cal Advocates
8 recommends that the Commission require PG&E to design the Site Prioritization Tool as
9 described by PG&E in response to Cal Advocates discovery, and to work with
10 stakeholders and CBOs to refine the Site Prioritization Tool prioritization criteria and
11 weighting methodologies.

12 **F. The Commission should direct PG&E to include GHG reduction**
13 **data attributable to the EVC 2 program in PG&E’s program**
14 **reports.**

15 PG&E states that it will monitor and report EVC 2 program-wide data and metrics
16 consistent with those adopted in D.20-08-045, per D.21-07-028.^{332, 333} PG&E further
17 states that it will use data collection and reporting templates available on the Commission
18 website.³³⁴ In the development of the CR 2 program, Cal Advocates recommended that
19 SCE report GHG emission reductions attributable to CR 2, and the Commission agreed
20 that gathering that data is essential to understanding the program’s GHG impact.³³⁵
21 While PG&E states that it will report EVC 2 data consistent with that which was
22 approved for CR 2, neither the SB 350 templates nor PG&E’s testimony specify that

³³¹ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q3b.

³³² PG&E Testimony, p. 3-19, lines 13-32.

³³³ D.21-07-028, pp. 73-76, OP 1. Any proposal for TE should include the same data collection and reporting requirements adopted for the Charge Ready 2 program in Decision 20-08-045.

³³⁴ SB 350 TE Reporting Requirements, *Transportation Electrification Activities Pursuant to Senate Bill 350*, California Public Utilities Commission, available at <https://www.cpuc.ca.gov/sb350te/>.

³³⁵ D.20-08-045, p. 123.

GHG reductions data will be reported. The Commission should direct PG&E to clarify that GHG reduction data attributable to the program will be included within its reporting.

G. The Commission should direct PG&E to expand upon the SB 350 report templates to report whether a site is within a defined AB 841 PC and include additional MFH site details.

In the SB 350 reporting templates, a utility is required to report on a variety of information such as program metrics, site location information, and outreach efforts, among others.³³⁶ However, both the SB 350 Annual Report Template and the Data Template³³⁷ only require differentiation between sites in either a DAC or a non-DAC area.³³⁸ In its EVC 2 application, PG&E defines underserved communities as meeting one or more of five criteria specified in AB 841.³³⁹ The AB 841 specifications expands the definition of an underserved community beyond merely defining it as either a DAC or non-DAC. Therefore, the SB 350 templates should be modified accordingly, to report whether a site is within a defined AB 841 PC, and to further identify which of the five AB 841 PC criteria causes a site to be classified as in an AB 841 PC. This would also

³³⁶ SB 350 TE Reporting Requirements, *Transportation Electrification Activities Pursuant to Senate Bill 350*, California Public Utilities Commission, available at <https://www.cpuc.ca.gov/sb350te/>.

³³⁷ SB 350 TE Reporting Requirements, *Transportation Electrification Activities Pursuant to Senate Bill 350*, California Public Utilities Commission, available at <https://www.cpuc.ca.gov/sb350te/>. A Data Template is an Excel workbook in which a utility is required to fill out specific TE program information such as location, cost, load, and ME&O data.

³³⁸ For example, see “SB 350 SRP Annual Report Template-Mar 2021.docx” Tables 1, 5, and 6, and “SB 350 Data Template-Feb 2021.xlsx.” Sheets “Location data” and “Cost data”, available at <https://www.cpuc.ca.gov/sb350te/>.

³³⁹ AB 841 (Ting, Statute 2020, Chapter 372, Section 5.) Underserved community means a community that meets one of the following criteria: 1. Is a “disadvantaged community” as defined by subdivision (g) of Section 75005 of the Public Resources Code; 2. Is included within the definition of “low-income communities” as defined by paragraph (2) of subdivision (d) of Section 39713 of Health and Safety Code; 3. Is within an area identified as among the most disadvantaged 25 percent in the state according to the California Environmental Protection Agency and based on the most recent California Communities Environmental Health Screening Tool, also known as CalEnviroScreen; 4. Is a community in which at least 75 percent of public school students in the project area are eligible to receive free or reduced-price meals under the National School Lunch Program; or 5. Is a community located on lands belonging to a federally recognized California Indian Tribe.

1 allow for insight into which criteria are most often enabling pursuit of projects within AB
2 841 PCs, and whether a given project meets a few of the five AB 841 PC criteria.

3 Additional reporting on characteristics of MFH are required to allow for review of
4 PG&E’s site selection and prioritization of funds towards communities in need. As
5 discussed in Chapter 3E, Cal Advocates recommends that an additional eligibility
6 criterion of a MFH having median rent less than the Fair Market Rent as defined by the
7 US Department of Housing and Urban Development be added to the eligibility criteria
8 for receipt of equity funding. PG&E should be required to expand upon the reporting
9 templates and include median rent of the MFH as well as the Fair Market Rent for the
10 area in which the MFH resides. Further, PG&E should be required to include
11 information regarding subsidized low-income units within a MFH site. PG&E should be
12 required to report on whether a MFH site contains subsidized low-income housing units,
13 how many subsidized low-income units the MFH contains, and what percentage of units
14 are subsidized low-income when compared to the total number of units in the MFH.

15 **H. The Commission should direct PG&E to conduct a competitive**
16 **solicitation to select an evaluator for the EVC 2 program and**
17 **eliminate the Program Survey budget.**

18 PG&E requests \$2.96 million, or 1 percent of its proposed EVC 2 budget, to
19 conduct evaluation of the EVC 2 program, focusing on collecting and reviewing data to
20 allow the Commission and stakeholders to evaluate the effectiveness of EVC 2 to
21 improve future light-duty charging infrastructure programs.³⁴⁰ PG&E states that it *will*
22 *consider* conducting a competitive solicitation to select a neutral third-party evaluator to
23 collect data on and evaluate the EVC 2 program within one year of the date of an adopted
24 decision, consistent with the decisions authorizing the CR 2 and PYD 2 programs.³⁴¹
25 PG&E’s statement that it “will consider” selecting a third-party evaluator is insufficient.
26 The Commission should explicitly require PG&E to conduct a competitive solicitation to

³⁴⁰ PG&E Testimony, p. 3-20, lines 7-12.

³⁴¹ PG&E Testimony, p. 3-20, lines 12-19.

1 select a neutral third-party evaluator to review the EVC 2 program. The evaluator should
2 both collect and review EVC 2 data to evaluate effectiveness and inform future programs
3 and investigate whether PG&E conducted EVC 2 at the lowest cost possible by
4 incorporating lessons learned from previous TE programs into its strategy.

5 PG&E obtained the proposed \$2.96 million evaluation budget by taking 1% of its
6 overall proposed EVC 2 budget,³⁴² citing the authorization of 1% of SCE's CR 2 budget
7 (\$4.3 million) and 4% of SDG&E's PYD 2 budget (\$1.365 million) for program
8 evaluation.³⁴³ PG&E cites program size alignment with SCE's CR 2 program as
9 informing its decision to select 1% of its total budget to conduct evaluation.³⁴⁴ This
10 budget should not be calculated based on PG&E's proposed total EVC 2 budget, but the
11 total EVC 2 budget the Commission finds reasonable, after accounting for any changes
12 and reductions, not to exceed the originally proposed \$2.96 million.

13 PG&E also proposes a \$150,000 Program Survey budget to support continuous
14 improvements through collection of lessons learned from EVC 2 through surveys, which
15 PG&E intends to develop and administer to program participants.³⁴⁵ This budget is
16 duplicative of requested spending on program evaluation and should be eliminated. As
17 mentioned previously, PG&E has proposed a program evaluation budget equal to 1% of
18 its total proposed EVC 2 program budget to collect data, evaluate EVC 2 effectiveness,
19 and develop lessons learned to inform future TE programs.³⁴⁶ PG&E provides no
20 justification as to why the program survey budget is proposed separately from the larger
21 program evaluation budget, despite the two activities having identical goals.
22 Furthermore, D.20-08-045, which authorized the budget for CR 2, included conducting
23 surveys to evaluate program success within the scope of the program evaluation budget

³⁴² PG&E Testimony, p. 3-20, lines 7-9.

³⁴³ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08ix, p. 5. FN 1 and 2.

³⁴⁴ PG&E Response to Cal Advocates Data Request (Cal Advocates-PGE-A2110010-001), Q08ix.

³⁴⁵ PG&E Testimony, p. 4-16, lines 11-18.

³⁴⁶ PG&E Testimony, p. 3-20, lines 7-12.

1 of CR 2,³⁴⁷ further eliminating any basis upon which PG&E can justify adding a separate
2 survey budget to the proposed 1% of the total EVC 2 budget for program evaluation.
3 PG&E's separate \$150,000 program survey budget should be eliminated. Including
4 surveys as part of the program evaluation process should be considered within the scope
5 of the neutral third-party evaluator's work under the larger program evaluation budget, as
6 was authorized for CR 2.

7 **III. CONCLUSION**

8 In conclusion, PG&E should refine or clarify several program implementation
9 details as noted above. Without these refinements, such as a requirement for a minimum
10 10% of cost savings from an ALM to be shared with the customer, refinement of the
11 Equity Initiatives, and having a neutral third-party program evaluator, ratepayers can be
12 more assured that program benefits will be maximized and delivered to those who need
13 it.

³⁴⁷ D.20-08-045, p. 126.

APPENDIX A

WITNESS QUALIFICATIONS

**QUALIFICATIONS AND PREPARED TESTIMONY
OF
ALAN BACH**

Q.1 Please state your name and business address.

A.1 My name is Alan Bach. My business address is 505 Van Ness Avenue, San Francisco, CA 94102.

Q.2 By whom are you employed and in what capacity?

A.2 I am employed by the California Public Utilities Commission as a Senior Utilities Engineer in the Energy Infrastructure Branch of the Public Advocates Office.

Q.3 Briefly state your educational background and experience.

A.3 I have a Bachelor of Science in Engineering Science, and a Master of Science in Civil Engineering with a focus in Energy, Infrastructure, and Climate, both from the University of California, Berkeley. I have a California professional engineering license (PE) in mechanical engineering, license # M39671.

I have been employed by the Public Advocates Office since February 2018. Since then, I have worked on or am working on proceedings related to Transportation Electrification including the Transportation Electrification Standard Review Proposals (Application (A.) 17-01-020 et al. and A.18-01-012), Southern California Edison's Charge Ready 2 program (A.18-06-015), San Diego Gas and Electric Company's Power Your Drive 2 (A.19-10-012), and the Commission's DRIVE Order Instituting Rulemaking (Rulemaking (R.) 18-12-006). Prior to working for the Public Advocates Office, I was a Utilities Engineer in the Commission's Safety and Enforcement Division, where I inspected utility gas infrastructure for safety compliance.

Q.4 What is the scope of your responsibility in this proceeding?

A.4 I am responsible for writing Chapter 1, Section II.A-F, and Chapter 3, Section II. A-B.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

1 **QUALIFICATIONS AND PREPARED TESTIMONY**
2 **OF**
3 **DAVID MATTHEWS**
4

5 **Q.1 Please state your name and business address.**

6 A.1 My name is David Matthews. My business address is 505 Van Ness Avenue, San
7 Francisco, CA 94102.
8

9 **Q.2 By whom are you employed and in what capacity?**

10 A.2 I am employed by the California Public Utilities Commission as a Utilities
11 Engineer in the Energy Infrastructure Branch of the Public Advocates Office.
12

13 **Q.3 Briefly state your educational background and experience.**

14 A.3 I hold a Bachelor of Science in Mechanical Engineering from California State
15 University, Sacramento. I received my Engineer-in-Training Certification in the
16 State of California in January 2021, certificate #172784.

17 I joined the Energy Infrastructure Branch in May 2021. Since then, I have worked
18 on or am working on proceedings including Pacific Gas and Electric Company's
19 (PG&E) Proposed Framework for Substation Microgrid Solutions to Mitigate
20 Public Safety Power Shutoffs (Application (A.) 21-06-022), the Distribution
21 Investment Deferral Framework (R.14-08-013 and R.21-06-017), Southern
22 California Edison's Application for a Certificate of Public Convenience and
23 Necessity for the Alberhill System Project (A.09-09-022), and Liberty Utilities
24 (CalPeco Electric)'s General Rate Case Test Year 2022 (A.21-05-017).
25

26 **Q.4 What is the scope of your responsibility in this proceeding?**

27 A.4 I am responsible for writing Chapter 1, Section II.G, and Chapter 3, Section II.F-H.
28

29 **Q.5 Does this complete your testimony at this time?**

30 A.5 Yes, it does.
31

1 **QUALIFICATIONS AND PREPARED TESTIMONY**
2 **OF**
3 **JAMES SIEVERS**
4

5 **Q.1 Please state your name and business address.**

6 A.1 My name is James Sievers. My business address is 505 Van Ness Avenue, San
7 Francisco, CA 94102.
8

9 **Q.2 By whom are you employed and in what capacity?**

10 A.2 I am employed by the California Public Utilities Commission as a Public Utilities
11 Regulatory Analyst in the Energy Infrastructure Branch of the Public Advocates
12 Office.
13

14 **Q.3 Briefly state your educational background and experience.**

15 A.3 I have a Master of Public Policy and a Bachelor of Arts in Political Science with a
16 concentration on American Politics and Institutions, from California Polytechnic
17 State University in San Luis Obispo. My Master's program focused on policy
18 analysis within the context of political institutions using mixed methods
19 qualitative and quantitative analysis. My Master's thesis analyzed carbon emission
20 health externalities and whether widespread promulgation of those social costs
21 could drive more widespread urgency to pursue renewable technologies.

22 I have been with Cal Advocates since November 17, 2021. I have worked on data
23 access issues within the High-DER OIR (R.21-06-017), and testimony for this
24 application. Prior to that I was a landscape construction professional for three
25 decades, with more than 20 years' experience as a landscape contractor and
26 business owner.
27

28 **Q.4 What is the scope of your responsibility in this proceeding?**

29 A.4 I was responsible for writing Chapter 2 on Program Scope.
30

31 **Q.5 Does this complete your testimony at this time?**

32 A.5 Yes, it does.
33

1 **QUALIFICATIONS AND PREPARED TESTIMONY**
2 **OF**
3 **DANIELLE DOOLEY**
4

5 **Q.1 Please state your name and business address.**

6 A.1 My name is Danielle Dooley. My business address is 505 Van Ness Avenue, San
7 Francisco, CA 94102.
8

9 **Q.2 By whom are you employed and in what capacity?**

10 A.2 I am employed by the California Public Utilities Commission as a Public Utilities
11 Regulatory Analyst in the Energy Infrastructure Branch of the Public Advocates
12 Office.
13

14 **Q.3 Briefly state your educational background and experience.**

15 A.3 I have a Master of International Affairs from the University of California (UC),
16 San Diego School of Global Policy and Strategy, focusing in International
17 Environmental Policy and Japan. My master's program focused on economics,
18 regulation, foreign policy and energy and resource economics. I also have a
19 Bachelor of Arts in Environmental Studies and History from the University of
20 California, Santa Cruz.

21 I started working at the Public Advocates Office in October 2017. During this
22 time, I worked primarily on the California Independent Service Operator (CAISO)
23 Congestion Revenue Rights Stakeholder Initiative and Transportation
24 Electrification Standard Review Proposals (A.17-01-020 et al. Prior to working at
25 the Public Advocates Office, I worked at PPD Inc. as a Senior Business Analytics
26 Fellow through the Environmental Defense Fund Climate Corps, where I
27 conducted an environmental audit of their global offices. I also worked as a
28 Development Services Coordinator at Save the Redwoods League (primarily
29 handling their database administration), Contractor at GAP Inc.'s Social and
30 Environmental Responsibility Department and spent 3 years working as a Waste
31 Reduction Coordinator at UC Santa Cruz. Additionally, I interned with Pacific
32 Environment on their China Program and the World Wildlife Fund as a Renewable
33 Energy Intern.
34

35 **Q.4 What is the scope of your responsibility in this proceeding?**

36 A.4 I was responsible for writing sections of Chapter 1, Section II.H.
37

1 **Q.5 Does this complete your testimony at this time?**

2 A.5 Yes, it does.

3

1 **QUALIFICATIONS AND PREPARED TESTIMONY**
2 **OF**
3 **ARTHUR TSENG**

4
5 **Q.1 Please state your name and business address.**

6 A.1 My name is Arthur Tseng. My business address is 505 Van Ness Avenue, San
7 Francisco, CA 94102.

8
9 **Q.2 By whom are you employed and in what capacity?**

10 A.2 I am employed by the California Public Utilities Commission as a Utilities
11 Engineer in the Energy Infrastructure Branch of the Public Advocates Office.

12
13 **Q.3 Briefly state your educational background and experience.**

14 A.3 I hold a Master of Science in Civil and Environmental Engineering from
15 University of California Berkeley, and a Bachelor of Science in Civil and
16 Environmental Engineering from University of Illinois Urbana Champaign. I
17 joined the Energy Infrastructure Branch in July 2021. I was previously an
18 engineer for an energy efficiency consultant for two years. I have a California
19 professional engineering license (PE) in mechanical engineering, license number
20 M40246.

21
22 **Q.4 What is the scope of your responsibility in this proceeding?**

23 A.4 I was responsible for writing sections of Chapter 3 on program details on program
24 eligibility, ownership and equity.

25
26 **Q.5 Does this complete your testimony at this time?**

27 A.5 Yes, it does.

APPENDIX B

SUPPORTING CALCULATIONS

Table B-1: Cal Advocates corrected EVC 2 cancelled projects budget estimate examples using PG&E's proposed program size¹

PG&E Cancelled Projects Budget Estimate									
Row		2023	2024	2025	2026	2027	2028	2029	Total
A	Total Expense Costs before Escalation and Contingency	\$ -	\$ 0.05	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.30	\$ -	0.927
B	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
C	Total Expense Costs after Escalation (row A*B)	-	0.05	0.12	0.22	0.29	0.33	-	0.99838
D	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
E	Total Contingency Costs after Escalation (row C*D)	-	0.005	0.012	0.022	0.029	0.033	-	0.09984
F	Total Expense Costs after Escalation and Contingency (row C+E)	-	0.05	0.13	0.24	0.32	0.36	-	1.098
PG&E Calculated							Total:	\$ 1,098,220.50	

Cal Advocates EV Site Prioritization Tool Budget Estimate Example 1 (reduction applied to earlier years)								
	2023	2024	2025	2026	2027	2028	2029	Total
G	PG&E Estimated Total Expense Costs before Escalation and Contingency							
H	\$ -	\$ 0.046	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.30	\$ -	0.927
	Reduction							
I	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row G-H)							
J								
	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13
K	Total Expense Costs after Escalation (row I*J)							
L								
	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
M	Total Contingency Costs after Escalation (row K*L)							
N								
	Total Expense Costs after Escalation and Contingency (row K+M)							
	Cal Advocates Cancelled Projects Budget Estimate:							
	PG&E Cancelled Projects Budget Estimate:							
	Difference:							
	\$ 1,098,220.50							

Cal Advocates EV Site Prioritization Tool Budget Estimate Example 2 (reduction applied to later years)									
		2023	2024	2025	2026	2027	2028	2029	Total
O	PG&E Estimated Total Expense Costs before Escalation and Contingency	\$ -	\$ 0.05	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.298	\$ -	0.927
P	Reduction								
Q	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row O-P)								
S	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
T	Total Expense Costs after Escalation (row Q*S)								
U	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
V	Total Contingency Costs after Escalation (row T*U)								
W	Total Expense Costs after Escalation and Contingency (row T+V)								
Cal Advocates Cancelled Projects Budget Estimate:									
PG&E Cancelled Projects Budget Estimate:									\$ 1,098,220.50
Difference:									

¹ Based on PG&E Workpapers, Ach. 02, worksheet "Ch. 7 - Expense".

Table B-2: Cal Advocates corrected EVC 2 cancelled projects budget estimate examples, using Cal Advocates' reduced program size²

PG&E Cancelled Projects Budget Estimate									
Row		2023	2024	2025	2026	2027	2028	2029	Total
	Total Expense Costs before Escalation and Contingency	\$ -	\$ 0.05	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.30	\$ -	0.927
A	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
B	Total Expense Costs after Escalation (row A*B)	-	0.05	0.12	0.22	0.29	0.33	-	0.99838
C	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
D	Total Contingency Costs after Escalation (row C*D)	-	0.005	0.012	0.022	0.029	0.033	-	0.09984
E	Total Expense Costs after Escalation and Contingency (row C+E)	-	0.05	0.13	0.24	0.32	0.36	-	1.098
F									
PG&E Calculated Total:									\$ 1,098,220.50
Cal Advocates EV Site Prioritization Tool Budget Estimate Example 1 (reduction applied to earlier years)									
		2023	2024	2025	2026	2027	2028	2029	Total
G	PG&E Estimated Total Expense Costs before Escalation and Contingency	\$ -	\$ 0.046	\$ 0.11	\$ 0.20	\$ 0.269	\$ 0.30	\$ -	0.927
H	Reduction								
I	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row G-H)								
J	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
K	Total Expense Costs after Escalation (row I*J)								
L	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
M	Total Contingency Costs after Escalation (row K*L)								
N	Total Expense Costs after Escalation and Contingency (row K+M)								
Cal Advocates Cancelled Projects Budget Estimate:									
PG&E Cancelled Projects Budget Estimate:									\$ 1,098,220.50
Difference:									
Cal Advocates EV Site Prioritization Tool Budget Estimate Example 2 (reduction applied to later years)									
		2023	2024	2025	2026	2027	2028	2029	Total
O	PG&E Estimated Total Expense Costs before Escalation and Contingency	\$ -	\$ 0.05	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.30	\$ -	0.927
P	Reduction								
Q	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row O-P)								
S	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
T	Total Expense Costs after Escalation (row Q*S)								
U	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
V	Total Contingency Costs after Escalation (row T*U)								
W	Total Expense Costs after Escalation and Contingency (row T+V)								
Cal Advocates Cancelled Projects Budget Estimate:									
PG&E Cancelled Projects Budget Estimate:									\$ 1,098,220.50
Difference:									

² Based on PG&E Workpapers, Ach. 02, worksheet "Ch. 7 - Expense".

**Table B-3: Cal Advocates Corrected EV Site
Prioritization Tool Budget Estimate Examples³**

PG&E EV Site Prioritization Tool Budget Estimate									
Row		2023	2024	2025	2026	2027	2028	2029	Total
	Total Expense Costs before Escalation and Contingency	0.225	0.375	0.375	0.150	0.150	0.150	0.075	1.500
A	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
B	Total Expense Costs after Escalation (row A*B)	0.23	0.38	0.39	0.16	0.16	0.17	0.08	1.56927
C	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
D	Total Contingency Costs after Escalation (row C*D)	0.023	0.038	0.039	0.016	0.016	0.017	0.008	0.15693
E	Total Expense Costs after Escalation and Contingency (row C+E)	0.25	0.42	0.43	0.18	0.18	0.18	0.09	1.726
F									
PG&E Calculated Total:									\$ 1,726,197.36
Cal Advocates EV Site Prioritization Tool Budget Estimate Example 1 (reducton applied to initial year)									
		2023	2024	2025	2026	2027	2028	2029	Total
G	PG&E Estimated Total Expense Costs before Escalation and Contingency	0.225	0.375	0.375	0.150	0.150	0.150	0.075	1.500
H	\$60,000 reduction applied in line with PG&E DR Estimate	-0.0600							(0.0600)
I	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row G-H)	0.165	0.375	0.375	0.150	0.150	0.150	0.075	1.440
J	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
K	Total Expense Costs after Escalation (row I*J)	0.17	0.38	0.39	0.16	0.16	0.17	0.08	1.50927
L	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
M	Total Contingency Costs after Escalation (row K*L)	0.017	0.038	0.039	0.016	0.016	0.017	0.008	0.15093
N	Total Expense Costs after Escalation and Contingency (row K+M)	0.18	0.42	0.43	0.18	0.18	0.18	0.09	1.660
Total:									\$ 1,660,197.36
PG&E Calculated Total:									\$ 1,726,197.36
Difference:									\$ 66,000.00
Cal Advocates EV Site Prioritization Tool Budget Estimate Example 2 (reducton applied to final year)									
		2023	2024	2025	2026	2027	2028	2029	Total
O	PG&E Estimated Total Expense Costs before Escalation and Contingency	0.225	0.375	0.375	0.150	0.150	0.150	0.075	1.500
P	\$60,000 reduction applied in line with PG&E DR Estimate							-0.0600	(0.0600)
Q	Cal Advocates Estimated Total Expense Costs before Escalation and Contingency (row O-P)	0.225	0.375	0.375	0.150	0.150	0.150	0.015	1.440
S	Expense Escalation Factors	1.00	1.02	1.04	1.06	1.08	1.10	1.13	-
T	Total Expense Costs after Escalation (row Q*S)	0.23	0.38	0.39	0.16	0.16	0.17	0.02	1.50170
U	Expense Contingency %	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	-
V	Total Contingency Costs after Escalation (row T*U)	0.023	0.038	0.039	0.016	0.016	0.017	0.002	0.15017
W	Total Expense Costs after Escalation and Contingency (row T+V)	0.25	0.42	0.43	0.18	0.18	0.18	0.02	1.652
Total:									\$ 1,651,870.64
PG&E Calculated Total:									\$ 1,726,197.36
Difference:									\$ 74,326.72

³ Based on PG&E Workpapers, Ach. 02, worksheet "Ch. 7 - Expense".

APPENDIX C

NON-PUBLIC CITATIONS

(CONFIDENTIAL)

Confidential

**Excerpt from Attachment 1 to Pacific Gas and Electric's
Response to Cal Advocates Data Request
ElectricVehicleCharge2_DR_CalAdvocates_003, Question 2**



Confidential – Contains confidential customer data pursuant to Public Util. Code § 8380; Decisions (D.) 14-05-016, 04-08-055, 06-12-029, Civ. Code §§ 1798 et seq., and Govt. Code § 6254; Also contains proprietary and trade secret informa

[Redacted content]

[Redacted content]

Notes:
Using EVCN Sponsor, MUD, DAC per-port data, PG&E determined that a \$22,000 cost per port would capture a majority of EVCN Sponsor, MUD, DAC sites

ition, protected under Civ. Code §§3426 et seq.; Govt. Code §§ 6254, et seq., e.g., 6254(e), 6254(k), 6254.15; Govt. Code § 6276.44; Evid. Code §1060; D.11-01-03

Confidential – Contains confidential customer data pursuant to Public Util. Code § 8380; Decisions (D.) 14-05-016 04-08-055 06-12-029 Civ. Code §§ 1798 et seq. and Govt. Code § 6254; Also contains proprietary and trade secret information protected under Civ. Code §§ 3426 et seq.; Govt. Code §§ 6254 et seq. e.g. 6254(e) 6254(1) 6254.15; Govt. Code § 6276.44; Evid. Code § 1000; D.11-01-036

Aggregate Ports/Costs Per-Port Cost
Aggregate Ports/Costs Per-Port Cost ¹
Aggregate Ports/Costs Per-Port Cost

¹ NOTE: For the purposes of FCM's EUC 2 applied on the Per-Port Cost excludes charge and above/per-Port payment costs. On average, this excludes AB 684, PC 12 MFH fees

Confidential

**Excerpt from Attachment 1 to Pacific Gas and Electric's
Response to SBUA's Data Request 001, Question 3**

Confidential – Contains confidential customer data pursuant to Public Util. Code § 8380; Decisions (D.) 14-05-016 04-08-055 06-12-029 Civ. Code §§ 1798 et seq. and Govt. Code § 6254; Also contains proprietary and trade secret information protected under Civ. Code §§3426 et seq.; Govt. Code §§ 6254 et seq. e.g. 6254(e) 6254(h) 6254.15; Govt. Code § 6276.44; Pub. Code §1060; D.11-01-036

Site type	Total site construction costs		Estimated BTM construction costs		Total EVSE rebates		Total ratepayer costs		# ports installed
	costs		costs						

Notes:
This sheet includes all sites that were fully installed as of 12/15/2021

Confidential

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_005,
Question 2**

Confidential – Contains confidential customer data pursuant to Public Util. Code § 8380; Decisions (D.) 14-05-016, 04-08-055, 06-12-029, Civ. Code §§ 1798 et seq., and Govt. Code § 6254; Also contains proprietary and trade secret information, protected under Civ. Code §§ 3426 et seq.; Govt. Code §§ 6254, et seq., e.g., 6254(e), 6254(k), 6254.15; Govt. Code § 6276.44; Evid. Code § 1060; D.11-01-036





Confidential

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_006,
Question 3**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates 006-Q003		
PG&E File Name:	ElectricVehicleCharge2 DR CalAdvocates 006-Q003CONF		
Request Date:	January 27, 2022	Requester DR No.:	006
Date Sent:	February 11, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Arthur Tseng/ David Gibbs

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 003

Referring to PG&E's response to Cal Advocates Data Request No: Cal Advocates-PGE-A2110010-001, Question 08(a)i., p. 1, PG&E states that "[f]or the Grid Visibility Tool, PG&E developed its forecast by consulting with its internal operations team and relying upon its experience developing the EV Savings Calculator for existing EV programs. This funding will allow for future development of the Tool." Referring to Table 7-3 on page 7-4 of PG&E's Testimony, the total cost listed for development of the Grid Visibility Tool is \$1.14 million.

- a. Please provide, within the proposed \$1.14 million budget, estimated costs for both initial tool development and "future development of the Tool" as mentioned above.
- b. Please describe the "future development of the Tool" that PG&E plans to undergo, including any specific features or enhancements not described in PG&E's testimony, and describe any benefits the enhancements would provide to customers.

ANSWER 003

Confidential pursuant to the Confidentiality Declaration dated February 10th, 2022.

Proprietary and trade secret information or other intellectual property and protected market sensitive/competitive data





Confidential

**Excerpt from Survey Responses Attachment to Pacific Gas
and Electric's Response to Cal Advocates Data Request
ElectricVehicleCharge2_DR_CalAdvocates_002, Question 1**



**Excerpt from Pacific Gas and Electric's Response to Cal Advocates
Data Request "ElectricVehicleCharge2_DR_CalAdvocates_002-
Q01Atch01CONF_Redacted"**



APPENDIX D

NON-PUBLIC CITATIONS

PG&E EVC 2 Workpapers Attachment 2

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
TABLE 6-3

Line No.	DESCRIPTION	MARKETING, EDUCATION, AND OUTREACH EXPENSE COST SUMMARY (\$M's After Escalation & Contingency - If Applicable)								Total					
		2023	2024	2025	2026	2027	2028	2029							
1	Direct-to-Customer (Email, Direct Mail, Teleservices)	\$	0.55	\$	0.56	\$	0.46	\$	0.35	\$	0.24	\$	-	\$	2.16
2	Digital Media		0.55		0.28		0.17		-		-		-		1.00
3	Relationship Management Support (BES/Public Affairs)		0.28		0.34		0.34		0.29		0.24		-		1.48
4	Non-AB 841 PC Utilization Site Events and Stakeholder Outreach		0.33		0.11		0.23		0.18		0.18		0.12		1.27
5	PG&E Marketing Labor Support		0.28		0.28		0.29		0.29		0.24		0.03		1.43
6	Agency Creative and Execution and Support Materials		0.52		0.45		0.46		0.35		0.36		0.06		2.26
7	TOTAL EXPENSE COSTS	\$	2.50	\$	2.02	\$	1.95	\$	1.46	\$	1.25	\$	0.21	\$	9.61

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
TABLE 6-4

Line No.	DESCRIPTION	EQUITY INITIATIVES EXPENSE COST SUMMARY (\$M's After Escalation & Contingency - If Applicable)										Total
		2023	2024	2025	2026	2027	2028	2029				
1	Focus Groups	\$ -	\$ -	\$ 0.07	\$ -	\$ -	\$ 0.08	\$ -	-	\$ -	\$ 0.15	
2	CBO Partnership for Customer Outreach	-	-	0.14	0.14	-	0.15	-	-	0.15	0.58	
3	Car Share Pilot	-	-	-	-	0.11	0.12	0.13	0.14	0.14	0.50	
4	CBO EV Advancement Funds	-	-	-	-	0.15	0.15	0.15	0.15	0.15	0.60	
5	CBO Partnership for AB 841 PC Post-Energization ME&O	0.11	0.11	0.11	0.23	0.48	0.73	0.87	0.87	0.87	2.64	
6	TOTAL EXPENSE COST	\$ 0.11	\$ 0.33	\$ 0.26	\$ 0.49	\$ 0.97	\$ 1.16	\$ 1.16	\$ 1.16	\$ 4.48		

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
TABLE 7-1

TOTAL EVC 2 CAPITAL COSTS											
(\$M's After Escalation - If Applicable)											
Line No.	DESCRIPTION ¹	2023	2024	2025	2026	2027	2028	2029	Total		
1	BTM Project + PM Capital Costs	\$ -	\$ 4.46	\$ 10.77	\$ 19.84	\$ 26.14	\$ 28.96	\$ -	\$ 90.17		
2	BTM Project + PM Capital Contingency Costs	-	0.28	0.68	1.26	1.66	1.85	-	5.72		
3	TOTAL EVC 2 CAPITAL COSTS	\$ -	\$ 4.74	\$ 11.45	\$ 21.10	\$ 27.80	\$ 30.80	\$ -	\$ 95.89		

Note:
¹ PM represents Project Manager, Project Control Analyst, and Scheduler

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
TABLE 7-2

TOTAL EVC 2 EXPENSE COSTS (\$M's After Escalation - If Applicable)												
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total				
1 BTM + Program Expense Costs	\$ 6.12	\$ 14.42	\$ 24.03	\$ 36.66	\$ 46.37	\$ 47.29	\$ 2.36	\$ 177.25				
2 BTM + Program Expense Contingency Costs	0.53	0.51	0.44	0.34	0.38	0.30	0.19	2.69				
3 TOTAL EVC 2 EXPENSE COSTS	\$ 6.66	\$ 14.93	\$ 24.47	\$ 37.01	\$ 46.75	\$ 47.58	\$ 2.55	\$ 179.94				

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
TABLE 7-3

TOTAL EVC 2 BTM + PROGRAM EXPENSE COST DETAILS (\$M's After Escalation & Contingency - If Applicable)												
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total				
Cancelled Projects	\$ -	\$ 0.05	\$ 0.13	\$ 0.24	\$ 0.32	\$ 0.36	\$ -	\$ 1.10				
Customer-Owned, BTM Rebate	-	6.35	15.17	27.84	36.67	40.43	-	126.47				
Customer-Owned, BTM O&M Rebate	-	0.00	0.00	0.00	0.00	0.00	-	0.01				
Equity Initiatives	0.11	0.33	0.26	0.49	0.97	1.16	1.16	4.48				
EV Savings Calculator	0.17	0.28	0.29	0.12	0.12	0.12	0.06	1.15				
EV Site Prioritization Tool	0.25	0.42	0.43	0.18	0.18	0.18	0.09	1.73				
Grid Visibility Tool	-	0.67	0.23	0.06	0.06	0.06	0.06	1.14				
Internal Labor (Customer Acquisition)	1.26	2.22	2.65	2.74	2.84	1.47	0.37	13.54				
Internal Labor (PMO+Proj Delivery)	0.51	0.85	1.18	1.38	1.39	1.48	0.30	7.09				
IT	1.33	0.77	0.56	0.50	0.45	0.39	0.26	4.26				
ME&O	2.50	2.02	1.95	1.46	1.25	0.21	0.22	9.61				
Preliminary Design and ROM Process	-	0.17	0.43	0.80	1.08	1.22	-	3.71				
Program Evaluator	0.14	0.34	0.64	0.86	0.97	-	-	2.96				
Program Survey	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.15				
Site Host Data API	0.37	0.37	0.38	-	-	-	-	1.12				
Utility-Owned, BTM O&M	-	0.07	0.17	0.31	0.42	0.47	-	1.43				
TOTAL BTM + PROGRAM EXPENSE COSTS	\$ 6.66	\$ 14.93	\$ 24.47	\$ 37.01	\$ 46.75	\$ 47.58	\$ 2.55	\$ 179.94				

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 6
MARKETING, EDUCATION, AND OUTREACH

MARKETING, EDUCATION, AND OUTREACH EXPENSE COST SUMMARY											
(\$M's Before Escalation & Contingency)											
Line No.	DESCRIPTION	2023	2024	2025	2026	2027	2028 ²	2029 ²	Total		
1	Direct-to-Customer (Email, Direct Mail, Teleservices)	\$ 0.50	\$ 0.50	\$ 0.40	\$ 0.30	\$ 0.20	\$ -	\$ -	\$ 1.90		
2	Digital Media	0.50	0.25	0.15	-	-	-	-	0.90		
3	Relationship Management Support (BES/Public Affairs)	0.25	0.30	0.30	0.25	0.20	-	-	1.30		
4	Non-AB 841 PC Utilization Site Events and Stakeholder Outreach ¹	0.30	0.10	0.20	0.15	0.15	0.10	0.10	1.10		
5	PG&E Marketing Labor Support	0.25	0.25	0.25	0.25	0.20	0.03	0.03	1.25		
6	Agency Creative and Execution and Support Materials	0.48	0.40	0.40	0.30	0.30	0.05	0.05	1.98		
7	TOTAL EXPENSE COSTS	\$ 2.28	\$ 1.80	\$ 1.70	\$ 1.25	\$ 1.05	\$ 0.18	\$ 0.18	\$ 8.43		

Note:

¹ Similar outreach efforts for AB 841 PC sites are included in the Ch. 6-4 - Equity Initiatives workpaper

² PG&E anticipates 2028 and 2029 spend for post-energization efforts

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 6
EQUITY INITIATIVES

EQUITY INITIATIVES EXPENSE COST SUMMARY (\$M's Before Escalation & Contingency)									
Line No.	DESCRIPTION	2023	2024	2025	2026	2027	2028 ²	2029 ²	Total
1	Focus Groups	\$ -	\$ 0.07	\$ -	\$ -	\$ 0.07	\$ -	\$ -	\$ 0.13
2	CBO Partnership for Customer Outreach	-	0.13	0.13	-	0.13	0.13	-	0.50
3	Car Share Pilot	-	-	-	0.10	0.10	0.11	0.11	0.41
4	CBO EV Advancement Funds	-	-	-	0.13	0.13	0.13	0.13	0.50
5	CBO Partnership for AB 841 PC Post-Energization ME&O ¹	0.10	0.10	0.10	0.20	0.40	0.60	0.70	2.20
6	TOTAL EXPENSE COST	\$ 0.10	\$ 0.29	\$ 0.23	\$ 0.42	\$ 0.82	\$ 0.96	\$ 0.94	\$ 3.74

Note:

¹ Similar outreach efforts for non-AB 841 PC sites are included in the Ch. 6-3 - MEO workpaper

² PG&E anticipates 2028 and 2029 spend for post-energization efforts

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
CAPITAL PROJECT + PM COSTS

TOTAL PROJECT + PM ¹ CAPITAL COSTS (\$M's After Escalation - If Applicable)									
Line No.	DESCRIPTION ²	2023	2024	2025	2026	2027	2028	2029	Total
<i>Utility-Owned</i>									
1	Charge Owner, AB 841 PC, L2, WP/Public	\$ -	\$ 1.28	\$ 3.09	\$ 5.67	\$ 7.49	\$ 8.27	\$ -	\$ 25.81
2	Charge Owner, AB 841 PC, DCFC, Public	-	2.79	6.75	12.41	16.30	18.02	-	56.27
3	Charge Sponsor, AB 841 PC, L2, MFH	-	0.38	0.94	1.76	2.35	2.66	-	8.09
4	TOTAL UTILITY-OWNED	\$ -	\$ 4.46	\$ 10.77	\$ 19.84	\$ 26.14	\$ 28.96	\$ -	\$ 90.17
<i>Customer-Owned</i>									
5	Charge Owner, AB 841 PC, L2, MFH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Charge Owner, AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-
7	Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-	-
8	Charge Owner, AB 841 PC, New Construction	-	-	-	-	-	-	-	-
9	Charge Owner, Non-AB 841 PC, L2, MFH	-	-	-	-	-	-	-	-
10	Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-
11	Charge Owner, Non-AB 841 PC, New Construction	-	-	-	-	-	-	-	-
12	TOTAL CUSTOMER-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
13	TOTAL PROJECT + PM CAPITAL COSTS	\$ -	\$ 4.46	\$ 10.77	\$ 19.84	\$ 26.14	\$ 28.96	\$ -	\$ 90.17
14	PROJECT + PM CAPITAL CONTINGENCY COSTS	\$ -	\$ 0.28	\$ 0.68	\$ 1.26	\$ 1.66	\$ 1.85	\$ -	\$ 5.72

Note:

¹ PM represents Project Manager, Project Control Analyst, and Scheduler

² A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTERS 7
CAPITAL PROJECT COSTS

Line No.	DESCRIPTION ¹	TOTAL CAPITAL PROJECT COSTS (\$M's After Escalation – If Applicable)										Total
		2023	2024	2025	2026	2027	2028	2029				
1	<i>Utility-Owned</i>											
2	Charge Owner, AB 841 PC, L2, WP/Public	\$ -	\$ 1.18	\$ 2.83	\$ 5.19	\$ 6.84	\$ 7.53	\$ -			\$ 23.56	
3	Charge Owner, AB 841 PC, DCFC, Public	-	2.76	6.65	12.23	16.07	17.75	-			55.46	
4	Charge Sponsor, AB 841 PC, L2, MFH ²	-	0.36	0.88	1.66	2.21	2.50	-			7.61	
5	TOTAL UTILITY-OWNED	\$ -	\$ 4.30	\$ 10.37	\$ 19.08	\$ 25.11	\$ 27.78	\$ -			\$ 86.62	
6	<i>Customer-Owned</i>											
7	Charge Owner, AB 841 PC, L2, MFH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ -	
8	Charge Owner, AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-			-	
9	Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-			-	
10	Charge Owner, AB 841 PC, New Construction	-	-	-	-	-	-	-			-	
11	Charge Owner, Non-AB 841 PC, L2, MFH	-	-	-	-	-	-	-			-	
12	Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-			-	
13	Charge Owner, Non-AB 841 PC, New Construction	-	-	-	-	-	-	-			-	
14	TOTAL CUSTOMER-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ -	
15												
16	TOTAL CAPITAL PROJECT COSTS	\$ -	\$ 4.30	\$ 10.37	\$ 19.08	\$ 25.11	\$ 27.78	\$ -			\$ 86.62	
17												

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTERS 7
CAPITAL PROJECT COSTS

TOTAL CAPITAL PROJECT CONTINGENCY COSTS (\$M's After Escalation - If Applicable)											
DESCRIPTION ¹	2023	2024	2025	2026	2027	2028	2029	Total			
Utility-Owned											
Charge Owner, AB 841 PC, L2, WP/Public - 5% of Capital Costs	\$ -	\$ 0.06	\$ 0.14	\$ 0.26	\$ 0.34	\$ 0.38	\$ -	\$ -	\$ -	\$ 1.18	
Charge Owner, AB 841 PC, DCFC, Public - 5% of Capital Costs	-	0.14	0.33	0.61	0.80	0.89	-	-	-	2.77	
Charge Sponsor, AB 841 PC, L2, MFH - 20% of Capital Costs	-	0.07	0.18	0.33	0.44	0.50	-	-	-	1.52	
TOTAL UTILITY-OWNED	\$ -	\$ 0.27	\$ 0.65	\$ 1.20	\$ 1.59	\$ 1.76	\$ -	\$ -	\$ -	\$ 5.47	
Customer-Owned³											
Charge Owner, AB 841 PC, L2, MFH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Charge Owner, AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-	-	-	
Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-	-	-	-	
Charge Owner, AB 841 PC, New Construction	-	-	-	-	-	-	-	-	-	-	
Charge Owner, Non-AB 841 PC, L2, MFH	-	-	-	-	-	-	-	-	-	-	
Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-	-	-	
Charge Owner, Non-AB 841 PC, New Construction	-	-	-	-	-	-	-	-	-	-	
TOTAL CUSTOMER-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOTAL CAPITAL PROJECT CONTINGENCY COSTS											
	\$ -	\$ 0.27	\$ 0.65	\$ 1.20	\$ 1.59	\$ 1.76	\$ -	\$ -	\$ -	\$ 5.47	

Note:

¹ A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace

² Escalation has been applied in this table only to Utility-Owned, Charge Sponsor, AB 841 PC, L2, MFH site costs, for whom PG&E proposes to cover 100% of the costs falling within an upper level cost target

³ Assumes no contingency for Customer-Owned sites

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
CAPITAL PM COSTS

Line No.	DESCRIPTION ²	TOTAL CAPITAL PM COSTS ¹ (\$M's After Escalation - If Applicable)										Total
		2023	2024	2025	2026	2027	2028	2029				
1	<i>Utility-Owned</i>											
2	Charge Owner, AB 841 PC, L2, WP/Public	\$ -	\$ 0.10	\$ 0.25	\$ 0.48	\$ 0.66	\$ 0.75	\$ -	\$ -	\$ -	\$ -	2.24
3	Charge Owner, AB 841 PC, DCFC, Public	-	0.04	0.09	0.18	0.24	0.27	-	-	-	-	0.82
4	Charge Sponsor, AB 841 PC, L2, MFH	-	0.02	0.05	0.10	0.14	0.16	-	-	-	-	0.48
5	TOTAL UTILITY-OWNED	\$ -	\$ 0.16	\$ 0.40	\$ 0.76	\$ 1.04	\$ 1.18	\$ -	\$ -	\$ -	\$ -	3.54
6	<i>Customer-Owned³</i>											
7	Charge Owner, AB 841 PC, L2, MFH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
8	Charge Owner, AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-	-	-	-
9	Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-	-	-	-	-
10	Charge Owner, AB 841 PC, New Construction	-	-	-	-	-	-	-	-	-	-	-
11	Charge Owner, Non-AB 841 PC, L2, MFH	-	-	-	-	-	-	-	-	-	-	-
12	Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-	-	-	-
13	Charge Owner, Non-AB 841 PC, New Construction	-	-	-	-	-	-	-	-	-	-	-
14	TOTAL CUSTOMER-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
15												
16	TOTAL CAPITAL PM COSTS	\$ -	\$ 0.16	\$ 0.40	\$ 0.76	\$ 1.04	\$ 1.18	\$ -	\$ -	\$ -	\$ -	3.54
17												

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
CAPITAL PM COSTS

TOTAL CAPITAL PM CONTINGENCY COSTS ¹ (\$M's After Escalation - If Applicable)								
DESCRIPTION ²	2023	2024	2025	2026	2027	2028	2029	Total
<u>Utility-Owned</u>								
Charge Owner, AB 841 PC, L2, WP/Public - 5% of Capital Costs	\$ -	\$ -	\$ 0.01	\$ 0.01	\$ 0.02	\$ 0.03	\$ 0.04	\$ 0.11
Charge Owner, AB 841 PC, DCFC, Public - 5% of Capital Costs	-	0.00	0.00	0.01	0.01	0.01	-	0.04
Charge Sponsor, AB 841 PC, L2, MFH - 20% of Capital Costs	-	0.00	0.01	0.02	0.03	0.03	-	0.10
TOTAL UTILITY-OWNED	\$ -	\$ 0.01	\$ 0.03	\$ 0.05	\$ 0.07	\$ 0.08	-	\$ 0.25
<u>Customer-Owned³</u>								
Charge Owner, AB 841 PC, L2, MFH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -
Charge Owner, AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-
Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-	-
Charge Owner, AB 841 PC, New Construction	-	-	-	-	-	-	-	-
Charge Owner, Non-AB 841 PC, L2, MFH	-	-	-	-	-	-	-	-
Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	-	-	-	-	-	-
Charge Owner, Non-AB 841 PC, New Construction	-	-	-	-	-	-	-	-
TOTAL CUSTOMER-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -
TOTAL CAPITAL PM CONTINGENCY COSTS	\$ -	\$ 0.01	\$ 0.03	\$ 0.05	\$ 0.07	\$ 0.08	-	\$ 0.25

Note:

- ¹ PM represents Project Manager, Project Control Analyst, and Scheduler
² A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace
³ Assumes no PM or contingency costs for Customer-Owned sites

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CAPITAL PM HOURS

Line No.	PER-PORT PM HOURS ¹	
	DESCRIPTION ²	Hours/Port ³
1	Utility-Owned	
2	Charge Owner, AB 841 PC, L2, WP/Public	6.06
3	Charge Owner, AB 841 PC, DCFC, Public	5.11
4	Charge Sponsor, AB 841 PC, L2, MFH	6.27
5		

Note:

¹ PM represents Project Manager, Project Control Analyst, and Scheduler
² A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace
³ Based on EVCN and EV Fast Charge data

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PORTS

Line No.	PORT DEPLOYMENT ¹ (Ports)											
	DESCRIPTION ²	2023	2024	2025	2026	2027	2028	2029	Total			
1	<u>Utility-Owned</u>											
2	Charge Owner, AB 841 PC, L2, WP/Public	-	96	230	421	555	611	-	1,913			
3	Charge Owner, AB 841 PC, DCFC, Public	-	41	99	182	239	264	-	825			
4	Charge Sponsor, AB 841 PC, L2, MFH	-	20	48	88	114	126	-	396			
5	TOTAL UTILITY-OWNED	-	157	377	691	908	1,001	-	3,134			
6	<u>Customer-Owned</u>											
7	Charge Owner, AB 841 PC, L2, MFH	-	7	16	29	38	42	-	132			
8	Charge Owner, AB 841 PC, L2, WP/Public	-	32	77	140	185	203	-	637			
9	Charge Owner, AB 841 PC, DCFC, Public	-	14	33	61	80	88	-	276			
10	Charge Owner, AB 841 PC, New Construction	-	100	240	440	580	640	-	2,000			
11	Charge Owner, Non-AB 841 PC, L2, MFH	-	94	225	412	543	598	-	1,872			
12	Charge Owner, Non-AB 841 PC, L2, WP/Public	-	298	714	1,309	1,725	1,903	-	5,949			
13	Charge Owner, Non-AB 841 PC, New Construction	-	100	240	440	580	640	-	2,000			
14	TOTAL CUSTOMER-OWNED	-	645	1,545	2,831	3,731	4,114	-	12,866			
15												
16	TOTAL PORT DEPLOYMENT	-	802	1,922	3,522	4,639	5,115	-	16,000			

Note:

¹ Annual port deployment is based on historical EVCN data; actual EVC 2 port deployment may vary by segment and year

² A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace

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PER-PORT COSTS

PER-PORT COST ANALYSIS								
Line No.	DESCRIPTION ¹	Avg. Per-Port Cost ²	BTM % ²	BTM \$'s <i>c = a * b</i>	Customer WTP <i>d</i>	Customer WTP % (Rounded)	Utility Cost Coverage (Upper Level Target) <i>f = c - d</i>	Utility Cost Coverage - Simplified (Upper Level Target) <i>g</i>
1								
2	<i>Utility-Owned</i>							
3	Charge Owner, AB 841 PC, L2, WP/Public	\$18,444	71.00%	\$13,095	\$1,500	10.0%	\$11,595	\$12,000
4	Charge Owner, AB 841 PC, DCFC, Public	\$111,000	67.00%	\$74,370	\$7,500	10.0%	\$66,870	\$67,000
5	Charge Sponsor, AB 841 PC, L2, MFH	\$22,000	75.00%	\$16,500	\$0	0.0%	n/a	n/a
6								
7	<i>Customer-Owned</i>							
8	Charge Owner, AB 841 PC, L2, MFH	\$22,000	75.00%	\$16,500	\$0	0.0%	n/a	n/a
9	Charge Owner, AB 841 PC, L2, WP/Public	\$18,444	71.00%	\$13,095	\$1,500	10.0%	\$11,595	\$12,000
10	Charge Owner, AB 841 PC, DCFC, Public	\$111,000	67.00%	\$74,370	\$7,500	10.0%	\$66,870	\$67,000
11	Charge Owner, Non-AB 841 PC, L2, MFH	\$17,102	71.00%	\$12,142	\$1,000	10.0%	\$11,142	\$12,000
12	Charge Owner, Non-AB 841 PC, L2, WP/Public	\$17,064	71.00%	\$12,115	\$2,500	20.0%	\$9,615	\$10,000
13								

Note:

¹ A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace
² L2 Avg. Per-Port Cost and BTM % data based on EVCON March 2021 data; DCFC Avg. Per-Port Cost and BTM % data based on EV Fast Charge cost estimates

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EXPENSE COSTS

Line No.	DESCRIPTION	TOTAL EXPENSE COSTS (\$M's Before Escalation and Contingency - If Applicable)										Total
		2023	2024	2025	2026	2027	2028	2029				
1	Cancelled Projects	\$ -	\$ -	\$ 0.05	\$ 0.11	\$ 0.20	\$ 0.27	\$ 0.30	\$ -		\$ 0.93	
2	Customer-Owned, Rebate ¹	-		0.00	0.00		0.00		-		0.01	
3	Customer-Owned, O&M Rebate										3.74	
4	Equity Initiatives	0.10	0.29	0.23	0.42	0.82	0.96		0.94		3.74	
5	EV Savings Calculator	0.15	0.25	0.25	0.10	0.10	0.10	0.10	0.05		1.00	
6	EV Site Prioritization Tool	0.23	0.38	0.38	0.15	0.15	0.15	0.15	0.08		1.50	
7	Grid Visibility Tool	-	0.60	0.20	0.05	0.05	0.05	0.05	0.05		1.00	
8	Internal Labor (Customer Acquisition)	1.26	2.14	2.47	2.47	2.47	2.47	1.24	0.30		12.35	
9	Internal Labor (PMO+Proj Delivery)	0.51	0.82	1.10	1.25	1.22	1.24	1.24	0.25		6.38	
10	IT	1.11	0.63	0.45	0.40	0.35	0.30	0.20	0.20		3.41	
11	ME&O	2.28	1.80	1.70	1.25	1.05	0.18	0.18			8.43	
12	Preliminary Design and ROM Process	-	0.17	0.41	0.76	1.00	1.11	-	-		3.45	
13	Program Evaluator	0.14	0.34	0.62	0.81	0.90	-	-	-		2.80	
14	Program Survey	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		0.14	
15	Site Host Data API	0.34	0.33	0.33	-	-	-	-	-		1.00	
16	Utility-Owned, O&M	-	0.06	0.15	0.27	0.36	0.39	-	-		1.23	
17	TOTAL EXPENSE COSTS, BEFORE ESCALATION AND CONTINGENCY - IF APPLICABLE	\$ 6.12	\$ 7.87	\$ 8.41	\$ 8.15	\$ 8.74	\$ 6.03	\$ 2.04	\$ -		\$ 47.37	

EXPENSE ESCALATION FACTORS									
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029		
Cancelled Projects	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Customer-Owned, Rebate ¹	1.00	1.02	1.03	1.05	1.07	1.09	1.11		
Customer-Owned, O&M Rebate	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Equity Initiatives	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
EV Savings Calculator	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
EV Site Prioritization Tool	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Grid Visibility Tool	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Internal Labor (Customer Acquisition)	1.00	1.04	1.07	1.11	1.15	1.19	1.23		
Internal Labor (PMO+Proj Delivery)	1.00	1.04	1.07	1.11	1.15	1.19	1.23		
IT	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
ME&O	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Preliminary Design and ROM Process	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Program Evaluator	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Program Survey	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Site Host Data API	1.00	1.02	1.04	1.06	1.08	1.10	1.13		
Utility-Owned, O&M	1.00	1.02	1.03	1.05	1.07	1.09	1.11		

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EXPENSE COSTS

TOTAL EXPENSE COSTS (\$M's After Escalation - If Applicable)									
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total	
Cancelled Projects	\$ -	\$ 0.05	\$ 0.12	\$ 0.22	\$ 0.29	\$ 0.33	\$ -	\$ 1.00	
Customer-Owned, Rebate ¹	-	6.35	15.17	27.84	36.67	40.43	-	126.47	
Customer-Owned, O&M Rebate	-	0.00	0.00	0.00	0.00	0.00	-	0.01	
Equity Initiatives	0.10	0.30	0.23	0.45	0.88	1.06	1.05	4.07	
EV Savings Calculator	0.15	0.26	0.26	0.11	0.11	0.11	0.06	1.05	
EV Site Prioritization Tool	0.23	0.38	0.39	0.16	0.16	0.17	0.08	1.57	
Grid Visibility Tool	-	0.61	0.21	0.05	0.05	0.06	0.06	1.04	
Internal Labor (Customer Acquisition)	1.26	2.22	2.65	2.74	2.84	1.47	0.37	13.54	
Internal Labor (PMO+Proj Delivery)	0.51	0.85	1.18	1.38	1.39	1.48	0.30	7.09	
IT	1.11	0.64	0.46	0.42	0.37	0.33	0.22	3.55	
ME&O	2.28	1.84	1.77	1.33	1.14	0.19	0.20	8.73	
Preliminary Design and ROM Process	-	0.17	0.43	0.80	1.08	1.22	-	3.71	
Program Evaluator	0.14	0.34	0.64	0.86	0.97	-	-	2.96	
Program Survey	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.15	
Site Host Data API	0.34	0.34	0.34	-	-	-	-	1.02	
Utility-Owned, O&M	-	0.06	0.15	0.28	0.38	0.43	-	1.30	
TOTAL EXPENSE COSTS, AFTER ESCALATION - IF APPLICABLE	\$ 6.12	\$ 14.42	\$ 24.03	\$ 36.66	\$ 46.37	\$ 47.29	\$ 2.36	\$ 177.25	

EXPENSE CONTINGENCY %'s							
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029
Cancelled Projects	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Customer-Owned, Rebate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Customer-Owned, O&M Rebate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity Initiatives	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
EV Savings Calculator	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
EV Site Prioritization Tool	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Grid Visibility Tool	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Internal Labor (Customer Acquisition)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Internal Labor (PMO+Proj Delivery)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
IT	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
ME&O	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Preliminary Design and ROM Process	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Program Evaluator	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Program Survey	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Site Host Data API	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Utility-Owned, O&M	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

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EXPENSE COSTS

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TOTAL EXPENSE COSTS (\$M's)								
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total
Cancelled Projects	\$ -	\$ 0.00	\$ 0.01	\$ 0.02	\$ 0.03	\$ 0.03	-	\$ 0.10
Customer-Owned, Rebate	-	-	-	-	-	-	-	-
Customer-Owned, O&M Rebate	-	-	-	-	-	-	-	-
Equity Initiatives	0.01	0.03	0.02	0.04	0.09	0.11	0.11	0.41
EV Savings Calculator	0.02	0.03	0.03	0.01	0.01	0.01	0.01	0.10
EV Site Prioritization Tool	0.02	0.04	0.04	0.02	0.02	0.02	0.01	0.16
Grid Visibility Tool	-	0.06	0.02	0.01	0.01	0.01	0.01	0.10
Internal Labor (Customer Acquisition)	-	-	-	-	-	-	-	-
Internal Labor (PMO+Proj Delivery)	-	-	-	-	-	-	-	-
IT	0.22	0.13	0.09	0.08	0.07	0.07	0.04	0.71
ME&O	0.23	0.18	0.18	0.13	0.11	0.02	0.02	0.87
Preliminary Design and ROM Process	-	-	-	-	-	-	-	-
Program Evaluator	-	-	-	-	-	-	-	-
Program Survey	-	-	-	-	-	-	-	-
Site Host Data API	0.03	0.03	0.03	-	-	-	-	0.10
Utility-Owned, O&M	-	0.01	0.02	0.03	0.04	0.04	-	0.13
TOTAL EXPENSE CONTINGENCY COSTS - IF APPLICABLE								
	\$ 0.53	\$ 0.51	\$ 0.44	\$ 0.34	\$ 0.38	\$ 0.30	\$ 0.19	\$ 2.69

Note:
Escalation has already been applied to applicable rebate costs

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EXPENSE PROJECT COSTS

Line No.	DESCRIPTION ¹	CUSTOMER-OWNED, REBATE (\$M's After Escalation - If Applicable)										Total
		2023	2024	2025	2026	2027	2028	2029				
1	<i>Utility-Owned</i>											
2	Charge Owner, AB 841 PC, L2, WP/Public	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	-	
3	Charge Owner, AB 841 PC, DCFC, Public	-	-	-	-	-	-	-	-	-	-	
4	Charge Sponsor, AB 841 PC, L2, MFH	-	-	-	-	-	-	-	-	-	-	
5	TOTAL UTILITY-OWNED	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	-	
6	<i>Customer-Owned</i>											
7	Charge Owner, AB 841 PC, L2, MFH ³	\$ -	\$ -	0.12 \$	0.28 \$	0.52 \$	0.69 \$	0.77 \$	-	\$ -	2.38	
8	Charge Owner, AB 841 PC, L2, WP/Public	-	-	0.38	0.92	1.68	2.22	2.44	-	-	7.64	
9	Charge Owner, AB 841 PC, DCFC, Public	-	-	0.94	2.21	4.09	5.36	5.90	-	-	18.49	
10	Charge Owner, AB 841 PC, New Construction	-	-	0.40	0.96	1.76	2.32	2.56	-	-	8.00	
11	Charge Owner, Non-AB 841 PC, L2, MFH	-	-	1.13	2.70	4.94	6.52	7.18	-	-	22.46	
12	Charge Owner, Non-AB 841 PC, L2, WP/Public	-	-	2.98	7.14	13.09	17.25	19.03	-	-	59.49	
13	Charge Owner, Non-AB 841 PC, New Construction	-	-	0.40	0.96	1.76	2.32	2.56	-	-	8.00	
14	TOTAL CUSTOMER-OWNED	\$ -	\$ -	6.35 \$	15.17 \$	27.84 \$	36.67 \$	40.43 \$	-	\$ -	126.47	
15												
16	TOTAL CUSTOMER-OWNED, REBATE	\$ -	\$ -	6.35 \$	15.17 \$	27.84 \$	36.67 \$	40.43 \$	-	\$ -	126.47	

Note:

¹ A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers; a WP is a workplace

² Escalation has been applied in this table only to Customer-Owned, Charge Owner, AB 841 PC, L2, MFH site costs, for whom PG&E proposes to cover 100% of the costs falling within an upper level cost target

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O&M EXPENSE COSTS

Line No.	DESCRIPTION ¹	UTILITY-OWNED, O&M COST SUMMARY (\$'s Before Escalation and Contingency)										
		2023	2024	2025	2026	2027	2028	2029	Total			
1	Charge Sponsor, AB 841 PC, L2, MFH Ports											
2	# of Ports Completed per Year	-	20	48	88	114	126	-				
3	L2 Cellular & Networking O&M Fee per Port	\$ 896.72	\$ 896.72	\$ 896.72	\$ 896.72	\$ 896.72	\$ 896.72	\$ 896.72				
4	L2 CELLULAR & NETWORKING O&M COSTS	\$ -	\$ 17,934	\$ 43,043	\$ 78,911	\$ 102,226	\$ 112,987	\$ -				\$ 355,101
5	L2 Ports											
6	# of Ports Completed per Year	-	116	278	509	669	737	-				
7	L2 Infrastructure O&M Fee per Port	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83				
8	L2 INFRASTRUCTURE O&M COSTS	\$ -	\$ 12,392	\$ 29,698	\$ 54,374	\$ 71,466	\$ 78,731	\$ -				\$ 246,660
9	DCFC Ports											
10	# of Ports Completed per Year	-	41	99	182	239	264	-				
11	DCFC Infrastructure O&M Fee per Port	\$ 758.71	\$ 758.71	\$ 758.71	\$ 758.71	\$ 758.71	\$ 758.71	\$ 758.71				
12	DCFC INFRASTRUCTURE O&M COSTS	\$ -	\$ 31,107	\$ 75,112	\$ 138,085	\$ 181,331	\$ 200,299	\$ -				\$ 625,935
13												
14	TOTAL UTILITY-OWNED, O&M COSTS	\$ -	\$ 61,433	\$ 147,852	\$ 271,371	\$ 355,024	\$ 392,016	\$ -				\$ 1,227,696
15												
16												

Line No.	DESCRIPTION ¹	CUSTOMER-OWNED, O&M COST SUMMARY ² (\$'s Before Escalation and Contingency)										
		2023	2024	2025	2026	2027	2028	2029	Total			
17	Charge Owner, AB 841 PC, L2, MFH Ports											
18	# of Ports Completed per Year	-	7	16	29	38	42	-				
19	L2 Infrastructure O&M Fee per Port	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83	\$ 106.83				
20	L2 INFRASTRUCTURE O&M COSTS	\$ -	\$ 748	\$ 1,709	\$ 3,098	\$ 4,059	\$ 4,487	\$ -				\$ 14,101
21												
22	TOTAL CUSTOMER-OWNED, O&M COSTS	\$ -	\$ 748	\$ 1,709	\$ 3,098	\$ 4,059	\$ 4,487	\$ -				\$ 14,101
23												
24												
25												

Note:

¹ A Charge Owner is a program participant who purchases and owns their EV chargers; a Charge Sponsor is a program participant for whom PG&E purchases and owns their EV chargers

² In the final stages of preparation for this application, PG&E identified some minor changes to its O&M assumptions (~\$100,000) which have not been reflected in Chapter 7, Section C, Results of Operations, and this worksheet. PG&E will provide updated worksheets that include this change after submission of this application.

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PER-PORT O&M COSTS

PER-PORT O&M COSTS (\$'s Before Escalation)		
DESCRIPTION		2021
<u>Utility-Owned, O&M</u>		
L2 Cellular & Networking O&M Fee	\$	873.00
L2 Infrastructure O&M	\$	104.00
DCFC Infrastructure O&M Fee	\$	738.64

Line No.

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ESCALATION FACTOR			
DESCRIPTION		2021	2022
Non-Labor Expense, Electric O&M Escalation			
		1.00	1.02
			1.03

PER-PORT O&M COSTS (\$'s After Escalation)			
DESCRIPTION		2021	2022
<u>Utility-Owned, O&M</u>			
L2 Cellular & Networking O&M Fee	\$	873.00	887.84
L2 Infrastructure O&M	\$	104.00	105.77
DCFC Infrastructure O&M Fee	\$	738.64	751.20

\$ 896.72

\$ 106.83

\$ 758.71

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IT EXPENSE COSTS

IT EXPENSE COST SUMMARY (\$M's Before Escalation and Contingency)										
Line No.	DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total	
1	Initial build (including data load) ¹	\$ 0.38	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$	0.38
2	Enhancements	0.50	0.40	0.25	0.20	0.15	0.10	-		1.60
3	Tech Enablement Support	0.10	0.10	0.07	0.07	0.07	0.07	0.07		0.55
4	Licenses	0.05	0.05	0.05	0.05	0.05	0.05	0.05		0.35
5	Ongoing O&M	0.08	0.08	0.08	0.08	0.08	0.08	0.08		0.53
6	TOTAL IT EXPENSE COST	\$ 1.11	\$ 0.63	\$ 0.45	\$ 0.40	\$ 0.35	\$ 0.30	\$ 0.20	\$	3.41

Note:

[†] Initial build (including data load) refers to extending PG&E's existing data platforms to include the EVC 2 program

PACIFIC GAS AND ELECTRIC COMPANY
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WORKPAPER SUPPORTING CHAPTER 7
INTERNAL LABOR COSTS

Line No.	INTERNAL LABOR (Number of Employees)												
	DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total				
1	PMO	Manager	1	1	1	1	1	1	7				
2		Supervisor	1	1	1	1	1	1	7				
3		Program analyst	1	3	3	3	3	3	17				
4		Utilization data analyst	1	1	1	1	1	1	5				
5		Product manager	1	1	1	1	1	1	6				
6		Contract admin	1	1	2	2	2	2	11				
7		Doc control	1	1	1	1	1	1	6				
8	Customer and Acquisition	Manager	1	1	1	1	1	1	7				
9		Supervisor	1	1	1	1	1	1	7				
10		Program manager	2	2	2	2	2	2	14				
11		Super user	1	1	1	1	1	1	7				
12		Onboarding specialist	4	5	5	5	5	3	28				
13		New construction rebates manager	1	1	1	1	1	1	7				
14		Manager		1	1	1	1	1	5				
15	Project Delivery	Supervisor		1	1	1	1	1	5				
16		Super user	1	1	1	1	1	1	6				
17		Lead engineer	1	1	1	1	1	1	6				
18		Engineer	2	3	5	5	5	5	25				
19		O&M engineer/asset manager			1	1	1	1	5				
20		Contract manager	1	1	1	1	1	1	6				
21		Field engineer		2	2	3	3	3	13				
22	Field clerk			1	2	2	2	8					
23	TOTAL NUMBER OF EMPLOYEES		22	30	35	37	35	12	208				
24													

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
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INTERNAL LABOR COSTS

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INTERNAL LABOR HOURS (Annual Hours) ¹									
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total	
PMO	Manager	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Supervisor	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Program analyst	1,560	4,680	4,680	4,680	4,680	1,560	26,520	
	Utilization data analyst	1,560	0	1,560	1,560	1,560	0	7,800	
	Product manager	1,560	1,560	1,560	1,560	1,560	0	9,360	
	Contract admin	1,560	1,560	3,120	3,120	3,120	1,560	17,160	
Customer Acquisition and Experience	Doc control	1,560	1,560	1,560	1,560	1,560	0	9,360	
	Manager	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Supervisor	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Program manager	3,120	3,120	3,120	3,120	3,120	3,120	21,840	
	Super user	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Onboarding specialist	6,240	7,800	7,800	7,800	7,800	4,680	43,680	
Project Delivery	New construction rebates manager	1,560	1,560	1,560	1,560	1,560	1,560	10,920	
	Manager	0	1,560	1,560	1,560	1,560	1,560	0	7,800
	Supervisor	0	1,560	1,560	1,560	1,560	1,560	0	7,800
	Super user	1,560	1,560	1,560	1,560	1,560	1,560	0	9,360
	Lead engineer	1,560	1,560	1,560	1,560	1,560	1,560	0	9,360
	Engineer	3,120	4,680	7,800	7,800	7,800	7,800	0	39,000
	O&M engineer/asset manager	0	0	1,560	1,560	1,560	1,560	1,560	7,800
	Contract manager	1,560	1,560	1,560	1,560	1,560	1,560	0	9,360
	Field engineer	0	3,120	3,120	4,680	4,680	4,680	0	20,280
	Field clerk	0	1,560	1,560	3,120	3,120	3,120	0	12,480
TOTAL LABOR HOURS		34,320	46,800	54,600	57,720	57,720	18,720	324,480	

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PERCENT OF TIME SPENT ON EVC 2										
	DESCRIPTION	2023	2024	2025	2026	2027	2028	2029		
PMO	Manager	14%	19%	29%	36%	24%	24%	12%		
	Supervisor	14%	19%	29%	36%	24%	24%	12%		
	Program analyst	36%	26%	32%	32%	32%	32%	24%		
	Utilization data analyst	10%		5%	12%	12%	12%			
	Product manager	24%	17%	12%	12%	10%	10%			
	Contract admin	12%	48%	30%	36%	36%	36%	12%		
Customer Acquisition and Experience	Doc control	12%	5%	5%	5%	5%	5%			
	Manager	50%	80%	90%	90%	90%	90%	5%		
	Supervisor	50%	80%	90%	90%	90%	90%	5%		
	Program manager	50%	100%	100%	100%	100%	100%	5%		
	Super user	50%	100%	100%	100%	100%	100%	5%		
	Onboarding specialist	50%	75%	100%	100%	100%	100%	5%		
Project Delivery	New construction rebates manager	100%	100%	100%	100%	100%	100%	100%		
	Manager		14%	24%	36%	36%	36%			
	Supervisor		14%	24%	36%	36%	36%			
	Super user		10%	7%	7%	7%	7%			
	Lead engineer		21%	21%	21%	21%	21%			
	Engineer		24%	24%	20%	20%	20%			
	O&M engineer/asset manager			5%	12%	24%	36%	48%		
	Contract manager	14%	19%	12%	12%	12%	12%			
	Field engineer		6%	12%	12%	12%	12%			
	Field clerk		12%	12%	9%	9%	9%			

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HOURS SPENT ON EVC 2											
	DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total		
PMO	Manager	223	297	446	557	371	371	186	2,450		
	Supervisor	223	297	446	557	371	371	186	2,450		
	Program analyst	557	1,225	1,486	1,486	1,486	1,486	371	8,097		
	Utilization data analyst	149	74	74	186	186	186	186	780		
	Product manager	371	260	186	186	149	149	186	1,299		
Customer Acquisition and Experience	Contract admin	186	743	936	1,114	1,114	1,114	186	5,391		
	Doc control	186	74	74	74	74	74	74	557		
	Manager	780	1,248	1,404	1,404	1,404	1,404	78	7,722		
	Supervisor	780	1,248	1,404	1,404	1,404	1,404	78	7,098		
	Program manager	1,560	3,120	3,120	3,120	3,120	1,560	156	15,756		
Project Delivery	Super user	780	1,560	1,560	1,560	1,560	780	78	7,878		
	Onboarding specialist	3,120	5,850	7,800	7,800	7,800	2,340	78	34,788		
	New construction rebates manager	1,560	1,560	1,560	1,560	1,560	1,560	1,560	10,920		
	Manager		223	371	557	557	557		2,265		
	Supervisor		223	371	557	557	557		2,265		
	Super user	260	149	111	111	111	111		854		
	Lead engineer	334	334	334	334	334	334		2,005		
	Engineer	743	1,114	1,856	1,578	1,578	1,578		8,447		
	O&M engineer/asset manager			74	186	371	557	743	1,931		
	Contract manager	223	297	186	186	186	186		1,262		
	Field engineer		186	371	557	557	557		2,228		
	Field clerk		186	186	278	278	278		1,207		
	TOTAL HOURS SPENT ON EVC 2	12,033	20,192	24,356	25,351	25,128	16,890	3,699	127,649		

2023 EXPENSE LABOR RATE - UNESCALATED	\$	146.76	\$	146.76	\$	146.76	\$	146.76	\$	146.76	\$	146.76
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PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
INTERNAL LABOR COSTS

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EVC 2 INTERNAL EXPENSE LABOR COSTS (\$M's Before Escalation)										
DESCRIPTION	2023	2024	2025	2026	2027	2028	2029	Total		
Manager	\$ 0.03	\$ 0.04	\$ 0.07	\$ 0.08	\$ 0.05	\$ 0.05	\$ 0.03	\$ 0.36		
Supervisor	0.03	0.04	0.07	0.08	0.05	0.05	0.03	0.36		
Program analyst	0.08	0.18	0.22	0.22	0.22	0.22	0.05	1.19		
Utilization data analyst	0.02		0.01	0.03	0.03	0.03		0.11		
Product manager	0.05	0.04	0.03	0.03	0.02	0.02		0.19		
Contract admin	0.03	0.11	0.14	0.16	0.16	0.16	0.03	0.79		
Doc control	0.03	0.01	0.01	0.01	0.01			0.08		
Manager	0.11	0.18	0.21	0.21	0.21	0.21	0.01	1.13		
Supervisor	0.11	0.18	0.21	0.21	0.21	0.11	0.01	1.04		
Program manager	0.23	0.46	0.46	0.46	0.46	0.23	0.02	2.31		
Super user	0.11	0.23	0.23	0.23	0.23	0.11	0.01	1.16		
Onboarding specialist	0.46	0.86	1.14	1.14	1.14	0.34	0.01	5.11		
New construction rebates manager	0.23	0.23	0.23	0.23	0.23	0.23	0.23	1.60		
Manager		0.03	0.05	0.08	0.08	0.08		0.33		
Supervisor		0.03	0.05	0.08	0.08	0.08		0.33		
Super user	0.04	0.02	0.02	0.02	0.02	0.02		0.13		
Lead engineer	0.05	0.05	0.05	0.05	0.05	0.05		0.29		
Engineer	0.11	0.16	0.27	0.23	0.23	0.23		1.24		
O&M engineer/asset manager			0.01	0.03	0.05	0.08	0.11	0.28		
Contract manager	0.03	0.04	0.03	0.03	0.03	0.03		0.19		
Field engineer		0.03	0.05	0.08	0.08	0.08		0.33		
Field clerk		0.03	0.03	0.04	0.04	0.04		0.18		
TOTAL EXPENSE LABOR COSTS	\$ 1.77	\$ 2.96	\$ 3.57	\$ 3.72	\$ 3.69	\$ 2.48	\$ 0.54	\$ 18.73		

Notes:
1 Assumes annual billable hours per employee = 1,560 hours (2,080 hours x 0.75% billable time)

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
INTERNAL LABOR RATES

Line No.

INTERNAL CAPITAL LABOR RATES (\$'s After Escalation)										
DESCRIPTION	2021	2022	2023	2024	2025	2026	2027	2028	2029	
2021 Hourly Rate - Capital	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00	\$ 159.00
Escalation Factor	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3
CAPITOL LABOR RATE - ESCALATED	\$ 159.00	\$ 164.57	\$ 170.32	\$ 176.29	\$ 182.46	\$ 188.84	\$ 195.45	\$ 202.29	\$ 209.37	

INTERNAL EXPENSE LABOR RATES (\$'s After Escalation)										
DESCRIPTION	2021	2022	2023	2024	2025	2026	2027	2028	2029	
2021 Hourly Rate - Expense	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00	\$ 137.00
Escalation Factor	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3
EXPENSE LABOR RATE - ESCALATED	\$ 137.00	\$ 141.80	\$ 146.76	\$ 151.89	\$ 157.21	\$ 162.71	\$ 168.41	\$ 174.30	\$ 180.40	

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
ESCALATION RATES

Line No.	ESCALATION RATES											
	CAPITAL ¹			NON-LABOR EXPENSE ¹			NON-LABOR EXPENSE ¹			LABOR EXPENSE ²		
	ELECTRIC PLANT			ELECTRIC O&M			A&G			A&G		
	ELECTRIC			ELECTRIC			A&G			ALL EMPLOYEES		
	YEAR	DIST	YEAR	YEAR	DIST	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR	YEAR
1	2022	2.6%	2022	2022	1.7%	2022	2022	2022	2022	2022	2022	2022
2	2023	2.7%	2023	2023	1.0%	2023	2023	2023	2023	2023	2023	2023
3	2024	2.7%	2024	2024	1.5%	2024	2024	2024	2024	2024	2024	2024
4	2025	2.7%	2025	2025	1.6%	2025	2025	2025	2025	2025	2025	2025
5	2026	2.7%	2026	2026	1.7%	2026	2026	2026	2026	2026	2026	2026
6	2027	2.7%	2027	2027	1.7%	2027	2027	2027	2027	2027	2027	2027
7	2028	2.7%	2028	2028	1.8%	2028	2028	2028	2028	2028	2028	2028
8	2029	2.7%	2029	2029	1.8%	2029	2029	2029	2029	2029	2029	2029
9												
10												
11												
12												
13												
14												
15	CUMULATIVE - 2021 BASE YEAR											
16												
17												
18												
19												
20												
21	2021	1.000	2021	2021	1.000	2021	2021	2021	2021	2021	2021	2021
22	2022	1.026	2022	2022	1.017	2022	2022	2022	2022	2022	2022	2022
23	2023	1.054	2023	2023	1.027	2023	2023	2023	2023	2023	2023	2023
24	2024	1.082	2024	2024	1.043	2024	2024	2024	2024	2024	2024	2024
25	2025	1.111	2025	2025	1.059	2025	2025	2025	2025	2025	2025	2025
26	2026	1.141	2026	2026	1.077	2026	2026	2026	2026	2026	2026	2026
27	2027	1.172	2027	2027	1.096	2027	2027	2027	2027	2027	2027	2027
28	2028	1.204	2028	2028	1.115	2028	2028	2028	2028	2028	2028	2028
29	2029	1.236	2029	2029	1.135	2029	2029	2029	2029	2029	2029	2029
30												
31	CUMULATIVE - 2023 BASE YEAR											
32												
33												
34												
35												
36												
37	2023	1.000	2023	2023	1.000	2023	2023	2023	2023	2023	2023	2023
38	2024	1.027	2024	2024	1.015	2024	2024	2024	2024	2024	2024	2024
39	2025	1.055	2025	2025	1.031	2025	2025	2025	2025	2025	2025	2025
40	2026	1.083	2026	2026	1.049	2026	2026	2026	2026	2026	2026	2026
41	2027	1.112	2027	2027	1.067	2027	2027	2027	2027	2027	2027	2027
42	2028	1.142	2028	2028	1.086	2028	2028	2028	2028	2028	2028	2028
43	2029	1.173	2029	2029	1.105	2029	2029	2029	2029	2029	2029	2029
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Notes:
¹ Escalation Rates are from PG&E's Q1 2021 Escalation Rates (source: IHS Markit)
² Escalation Rates are from PG&E's 2023 General Rate Case, Exhibit (PG&E-8), WP 4-22, assumes the same rate for 2027-2029

PACIFIC GAS AND ELECTRIC COMPANY
ELECTRIC VEHICLE CHARGE 2 PROGRAM APPLICATION (A.21-10-010)
WORKPAPER SUPPORTING CHAPTER 7
CAPITAL COSTS BY ASSET CLASS

TOTAL CAPITAL PROJECT + PM ¹ (\$M's After Escalation & Contingency - If Applicable)										
Line No.	DESCRIPTION ²	BTM %	2023	2024	2025	2026	2027	2028	2029	Total
1	<u>Utility-Owned, Charge Sponsor, AB 841 PC, L2, MEH</u>									
2	EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise	86.50%	\$ -	\$ 0.39	\$ 0.97	\$ 1.83	\$ 2.43	\$ 2.76	\$ -	\$ 8.39
3	EDP37101 - Distbn Plant: Electric Charging Station	13.50%	-	0.06	0.15	0.29	0.38	0.43	-	1.31
4		100.00%	\$ -	\$ 0.46	\$ 1.12	\$ 2.11	\$ 2.81	\$ 3.20	\$ -	\$ 9.70
5	<u>Utility & Customer-Owned, Charge Owner, AB 841 PC & Non-AB 841 PC, L2, MEH/WP/Public</u>									
6	EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise	100.00%	\$ -	\$ 1.35	\$ 3.24	\$ 5.95	\$ 7.87	\$ 8.69	\$ -	\$ 27.10
7		100.00%	\$ -	\$ 1.35	\$ 3.24	\$ 5.95	\$ 7.87	\$ 8.69	\$ -	\$ 27.10
8	<u>Utility and Customer-Owned, Charge Owner, AB 841 PC and Non-AB 841 PC, DCEG, Public</u>									
9	EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise	100.00%	\$ -	\$ 2.93	\$ 7.08	\$ 13.03	\$ 17.12	\$ 18.92	\$ -	\$ 59.09
10		100.00%	\$ -	\$ 2.93	\$ 7.08	\$ 13.03	\$ 17.12	\$ 18.92	\$ -	\$ 59.09
11										
12	TOTAL CAPITAL PROJECT + PM COSTS		\$ -	\$ 4.74	\$ 11.45	\$ 21.10	\$ 27.80	\$ 30.80	\$ -	\$ 95.89

Note:

¹ PM Project Manager, Project Control Analyst, and Scheduler

² A "Charge Owner" is a program participant who purchases and owns their EV chargers; a "Charge Sponsor" is a program participant for whom PG&E purchases and owns their EV chargers; a "WP" is a workplace

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_003,
Question 2**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates 003-Q02		
PG&E File Name:	ElectricVehicleCharge2 DR CalAdvocates 003-Q02		
Request Date:	January 6, 2022	Requester DR No.:	003
Date Sent:	January 21, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Alan Bach

QUESTION 02

Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7- Per-Port-Cost", lines 8-9, PG&E states that its EVCN per port costs for ports installed in AB 841 PCs are \$22,000 and \$18,444 per port for MFHs and workplace/public destinations, respectively. The same costs per port are stated for PG&E's EVC 2 Workpapers filed on November 18, 2021, Attachment 2, worksheet "Ch. 7- Per-PortCost", lines 5 and 3, respectively. However, in the same "Ch. 7-Per-Port-Cost" worksheet, lines 11-12, PG&E states that its EVCN per port costs for ports installed in non-AB 841 PCs are \$17,102 and \$17,064 per port for MFHs and workplace/public destinations, respectively. Please state the basis for and provide documents showing why PG&E's AB 841 PC ports are more expensive on a per port basis than non-AB 841 PC ports.

ANSWER 02

PLEASE NOTE, THE ATTACHMENT TO THIS RESPONSE CONTAINS CONFIDENTIAL INFORMATION DESCRIBED IN THE ACCOMPANYING DECLARATION DATED JANUARY 21, 2022.

PG&E has provided attachment "ElectricVehicleCharge2_DR_CalAdvocates_003-Q02Atch01CONF.xlsx", 'Q2 - Part I - CONF' and 'Q2 - Part II - CONF' tabs, in support of its EVC 2 L2 per-port costs.

- i. 'Q2 - Part I - CONF' tab represents aggregate costs related to 165 sites completed and fully invoiced as of March 2021 using rules-of-thumb data, which include:
 1. Column F for "Design/Permits" costs;
 2. Column G for "Materials" costs;
 3. Column H for "TTM Labor" cost;
 4. Column I for "BTM Labor" costs;
 5. Column J for "Charger" costs when applicable;
 6. Column K for "Rebate/PP" costs, where "PP" stands for participation payments;
 7. Column H for "PG&E Overheads" which may include, but are not limited to, the following costs which are billed directly to sites:
 - a. IT;

- b. Administrative & General;
 - c. building services;
 - d. benefits;
 - e. contract management overheads; and,
 - f. environmental costs.
- ii. Q2 – Part II – CONF’ tab
 - 1. For EVC 2’s AB 841 PC, L2 MFH sites, PG&E used data provided in the ‘Q2 - Part I - CONF’ tab to calculate the per-port cost for EVCN Sponsor, MUD, DAC sites and determined that a \$22,000 cost per port would capture a majority of EVCN Sponsor, MUD, DAC sites.
 - a. Note that the EVCN per-port costs include charger, rebate, and participation payment costs¹
- iii. ‘Q2 - Part III - CONF’ tab
 - 1. For EVC 2’s non-AB 841 PC, L2 MFH sites, PG&E used data provided in the ‘Q2 - Part I - CONF’ tab to calculate specific per-port EVCN costs
 - a. Note that the EVCN per-port costs exclude charger, rebate, and participation payment costs
 - i. PG&E used EVCN Owner, WP, DAC sites as a proxy for EVC 2 Utility-owned & Customer-owned, Charge Owner, AB 841 PC, L2, WP/Public sites
 - ii. PG&E used EVCN Owner, MUD, Non-DAC sites as a proxy for EVC 2 Customer-owned, Charge Owner, Non-AB 841 PC, L2, MFH sites
 - iii. PG&E used EVCN Owner, WP, Non-DAC sites as a proxy for EVC 2 Customer-owned, Charge Owner, Non-AB 841 PC, L2, WP/Public sites

¹ In order to fill a key market gap of charging infrastructure at MFH in AB 841 PCs, and given the lowest willingness-to-pay expected in this segment, PG&E will cover all costs for BTM make-ready infrastructure and EVSE in its EVC 2 program.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 6**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q6		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q06		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 06

- a) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...there is an outstanding demand to participate in the expiring or soon expiring program.”
- i. For PG&E’s EV Charge Network (EVCN) program, please provide the number of sites and the requested number of ports that are on PG&E’s waitlist or are otherwise scheduled to be installed.
- ii. For PG&E’s DC Fast Charge (DCFC) program, please provide the number of sites and the requested number of ports that are on PG&E’s waitlist or are otherwise scheduled to be installed.
- b) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...the Electrical Corporation clearly incorporates lessons learned from the pilot to maximize ratepayer benefits and reduce per port costs relative to the existing program.” Please provide a table showing the lesson(s) learned from EVCN that PG&E incorporates into EVC 2, and a description of how the lesson(s) learned reduces PG&E’s EVC 2 per port costs. If possible, provide a calculation of the cost reduction per port achieved by incorporating the lesson(s) learned.
- c) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...the Electrical Corporation provides rationale for how the proposal will help California meet the state charging targets without ratepayers taking on the full burden, taking into account any updates to the CEC’s [California Energy Commission’s] AB [Assembly Bill] 2127 report.” Please state the basis for, and provide documents demonstrating, how PG&E’s proposed program size and number of DCFCs takes into account the CEC’s AB 2127 report.

Answer 06

- a)
- i. A PG&E installed 4,827 ports in EVCN and no additional ports are scheduled to be installed under the program.¹ There were four times the number of applicants as viable sites able to be served by the program.²
 - ii. PG&E has received 256 applications for 1,148 ports. This represents nearly five times the number of applicants as forecasted sites able to be served by the EV Fast Charge Program.³ Of applications received, four sites have been installed, and 17 more sites are contracted with customers and in the queue for installation.⁴

b)

<u>Lesson Learned</u>	<u>How does the lesson learned maximize ratepayer benefits and/or reduce per port costs relative to the existing program?</u>
<i>PG&E will use segment-specific customer cost share.</i> PG&E's experience in EVCN and EV Fast Charge was critical in validating and nuancing the foundational concept that customers are willing to contribute to the costs of a project. Through the deployment of EVCN and EV Fast Charge, PG&E has been able to work with customers to understand how they view their investment and the varying amounts different customers are willing to invest. (Prepared Testimony, Chapter 3)	Requiring customers to contribute a percentage amount of the total project cost is a means of bringing down the ratepayer-funded cost per site relative to existing programs. For example, in EVC 2, PG&E proposes to cover 80% of the project cost, up to \$10,000, for workplaces outside of AB 841 Prioritized Communities. \$10,000 represents just 80% of the BTM-only portion of project costs in EVCN. An additional ratepayer benefit of the increase customer cost share is to ensure that investments are used and useful: Site Hosts are likely to have even more "skin in the game" to ensure that the site remains an attractive

¹ See PG&E News Release, October 13, 2021. https://www.pge.com/en_US/about-pge/media-newsroom/news-details.page?pageID=2d6cffcd-df97-4999-84b6-ccfaef5598fe&ts=1641338320281.

² Pacific Gas and Electric Company Electric Vehicle Charge 2 Prepared Testimony (PG&E Prepared Testimony), A.21-10-010, Oct. 26, 2021, Chap. 2, p. 2-2. As of a December 2020 analysis, there were 606 unserved applications, a combination of applications on the waitlist and leads, which was a designation used at tail end of EVCN to denote high opportunity customers that would be easy to move forward with, should the opportunity arise.

³ See *id.* at Chap. 2, p. 2-2 (EVC 2 Prepared Testimony originally reported that EV Fast Charge experienced "three times the number of applicants as forecasted"; however, after completing the most recent site solicitation in October 2021, that number rose to "five times the number of applicants as forecasted.").

⁴ See PG&E's Reply to Protests and Responses, December 9, 2021, for more details on the EV Fast Charge timeline and process.

	charging spot for EV drivers into the future.
<p><i>PG&E Will Utilize Automated Load Management (ALM) More Universally to Help Lower Costs.</i> EVCN successfully utilized ALM to serve customers whose projects would otherwise be too expensive to participate in the program. Using ALM technologies in EVCN, PG&E deployed charging infrastructure at sites in a manner that reduced the originally requested capacity by more than 50 percent to stay within the electrical capacity of the existing or lower cost infrastructure. This resulted in cost savings ranging from \$30,000 to \$200,000 per project. PG&E intends to look to ALM as a cost reducing measure from the beginning of each project design, rather than just when a project exceeds cost targets. PG&E will continue to advocate for the deployment of ALM technology in EVC 2 projects by working with site hosts to understand their charging needs, site conditions, and charging hardware capabilities. (Prepared Testimony, Chapter 5)</p>	<p>To further reduce costs of EVC 2, PG&E intends to continue leveraging ALM in EVC 2 to reduce costs to both site hosts and PG&E ratepayers and limit impacts to the local distribution system serving EVC 2 charging load, which also benefits PG&E ratepayers in the long run.</p>
<p><i>PG&E Will Support Low Cost Opportunities for Futureproofing When They Fit Within Program Cost Targets.</i> PG&E has experience tactically deploying futureproofing solutions for a variety of customer segments through its EV programs and expects that this can save customers and ratepayers money in the long-term. Futureproofing refers to marginally increasing the scope of work in the present to enable additional or higher-powered chargers to be installed later.⁵</p>	<p>The costs incurred today from futureproofing in EVC 2 are expected to be more than offset by the foregone future costs which are no longer needed (e.g., asphalt does not need to be retrenched since multiple conduits were added the first time), thus saving ratepayers money, thus maximizing ratepayer benefit.</p>
<p><i>PG&E Will Leverage Utilization Data from EVCN to Enhance Prioritization and Site Selection.</i> In the EV Fast Charge</p>	<p>Selecting sites which have a high probability of future utilization serves to benefit existing and potential EV drivers,</p>

⁵ The scope of futureproofing generally refers to the installation of wider or additional conduit and may also extend to other features such as larger switchgear, meter panels and upstream equipment.

<p>program, PG&E introduced the concept of evaluating utilization potential during the application and site selection process through indicative criteria such as regional EV adoption rates and EVSP reported forecasts. More EV Fast Charge sites need to be energized and available to the public before actual utilization can be compared between sites and used to improve the utilization indicators employed during site ranking and selection. However, PG&E can leverage the data collected since EV Fast Charge program inception to enhance and grow this site evaluation methodology for EVC 2 implementation.</p>	<p>as well as PG&E ratepayers. Increasing EV charger utilization has the potential to decrease electric rates over time.</p>
<p><i>Simplicity and Lower Installation and Ownership Costs.</i> Based on a survey conducted by PG&E, Participants in EVCN expressed a preference for PG&E to take care of the entire project, from initial design to installation of chargers, both to simplify the process for customers and to reduce customer costs. The primary concern among both Participants and Non-Participants was keeping costs low. PG&E is adept at spotting site conditions which may increase project costs beyond program targets based on implementing the EVCN and EV Fast Charge programs. To optimize program funding and minimize customer costs, EVC 2 will focus on L2 charging sites with 20 or more ports and DCFC sites with four or more ports. (Prepared Testimony, Chapter 3)</p>	<p>PG&E will aim to minimize EVC 2 ratepayer and customer costs per port by focusing from the start on L2 charging sites with 20 or more ports and DCFC sites with four or more ports will reduce costs per port. PG&E will further minimize program costs and maximize ratepayer benefits by focusing only sites most likely to be cost viable.</p>
<p><i>PG&E Will Create an Application Format to Effectively Prioritize Sites and Minimize Program Administration Costs.</i> In EVCN, PG&E did not collect information regarding utilization potential, estimated trench lengths, or accessible EV space and parking lot improvement requirements. In contrast, the EV Fast Charge application includes more complex questions than EVCN; these questions address site conditions and utilization potential, among other items.</p>	<p>The improved application format relative to EVCN will allow PG&E to more effectively prioritize cost-effective sites that have higher potential for future utilization, thus maximizing ratepayer benefit. This approach also enables PG&E (and thus ratepayers) to save administrative and project management costs by ensuring that site walks and preliminary designs are performed on high potential sites, reducing the number of customers who find they are unable to</p>

<p>PG&E will also continuously improve on previous program applications and further enhance site prioritization methodologies in EVC 2. (Prepared Testimony, Chapter 4)</p>	<p>participate due to higher costs or technical complexity, later in the process. The prioritization in EVC 2 will also increase program cost effectiveness and maximize ratepayer benefit.</p>
<p><i>PG&E Will Offer an Onsite Turnkey Solution, as Well as Workplace and Public Destination Charging, to Address the Demands and Needs from MFH AB 841 PC Customers.</i> The requirement for customer ownership can increase costs and project deployment responsibilities for many participating customers. PG&E will deploy a mix of workplace and public destination infrastructure in EVC 2 to ensure that communities receive sufficient EV charging support. If customers interested in installing EVSE on their property are unable to bear the increased costs and project deployment responsibilities imposed by D.21-07-028, access to nearby workplace or public chargers as an alternative will prove essential.</p>	<p>Providing a turnkey solution along with public destination sites to support customers who cannot or do not want to install onsite infrastructure meets customers needs, which is a way of ensuring the investments are used and useful, thus maximizing ratepayer benefit.</p>
<p><i>PG&E Will Focus Installation of DCFCs at Public Destinations as an Additional Means of Serving MFH Residents.</i> The challenges to EV adoption at MFHs are well-documented⁶ and a trend has emerged among market and policy leaders to address MFH needs through MFH-serving locations, such as chargers within a short walking distance of MFHs and DCFC at key destinations with reasonable dwell times within a short travel time of one or more MFHs. To date, utilization at MFHs in DACs is the lowest across all EVCN charger types. Many parking spots at MFHs are dedicated to</p>	<p>DCFCs have the potential for higher utilization than strictly on-site MFH charging, thus providing the opportunity for more downward pressure on rates.</p>

⁶ Report, Ecology Action, Innovations in Electric Vehicle Charging for Multifamily Dwellings, November 2020, https://ecoact.org/ea2020/wp-content/uploads/2020/11/Ecology-Action-Innovation-in-EV-Charging-for-MUDs_11.20.2020.pdf; see also Report, University of California, Los Angeles (UCLA) Luskin School of Public Policy, Evaluating Multi Unit Resident Charging Behavior at Direct Current Fast Chargers, February 2021, <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf>.

<p>specific units, capping charger usage potential. However, site hosts and other stakeholders have emphasized to PG&E the importance of being able to offer charging at dedicated parking spots in our programs in part because some other funding agencies who help defray the costs of EV charging stations excluded dedicated parking spots. PG&E thus learned that to address the access barriers for MFHs, EVC 2 should be a hybrid program that supports installation of onsite MFH chargers for customers where it is feasible, while also supporting installation of public charging, which has potential for market lift by providing accessibility to the whole resident population, not just the occupants of specific units. (Prepared Testimony, Chapters 1 and 3)</p>	
<p><i>PG&E Will Improve Application Evaluation Times and Conversion Rates by Increasing EVSP Involvement in the Application Process.</i> In EVCN, the site host completed the application. In EV Fast Charge, EVSPs complete program applications on a site's behalf, rather than the site host doing so themselves. The theory behind the EV Fast Charge application process is that it requires more sites to speak to their prospective EVSP and learn about the costs and complexities of EV charging hardware before applying to the program, leaving the customer more informed and prepared for participation in the program. It also enables PG&E to collect more technical information in the application beyond what an average customer may feel knowledgeable about or comfortable providing, which leads to better site prioritization and reduced administrative and project management costs.</p> <p>By also allowing EVSPs to complete applications on the customer's behalf, EVC 2 will benefit from a customer who is more educated about the market and the value the program is offering to them.</p>	<p>Allowing EVSPs to submit applications on a Site Host's behalf has the potential to reduce PG&E's administrative and project management costs relative to EVCN.</p>

<p>The site eligibility and customer commitment process will also likely be expedited as time spent considering options and alternatives will have been done in advance of applying to the program. (Prepared Testimony, Chapter 4)</p>	
<p><i>PG&E Will Deploy Innovative Partnerships and Marketing, Education and Outreach Tactics for Site Hosts After Installation to Bolster EV Adoption.</i> In evaluating EVCN site utilization, PG&E found that site hosts that performed “post energization marketing, education, and outreach (ME&O)” saw up to three times higher utilization than the program average. As PG&E’s goal in deploying EVC 2 is to accelerate EV adoption, and as higher utilization may be indicative of EV adoption near installed infrastructure, PG&E is including post energization outreach as a key component to the EVC 2 ME&O Plan. (Prepared Testimony, Chapter 6)</p>	<p>Increased utilization can lead to downward pressure on rates, thus maximizing ratepayer benefit from their investment in EVC 2.</p>
<p><i>PG&E Will Focus on Improving Data Sharing and Alignment with Other Funding Entities.</i> Ancillary funding is often needed by site hosts in order to proceed with an EV charging installation. PG&E has experience stacking state and local incentives with its EV programs to ensure customers receive the maximum amount of support without duplicating the efforts of any funding entities. Through PG&E’s regular meetings with grant administrators, PG&E has learned the value of sharing grant or rebate recipient lists (and dollar values) between agencies to ensure customers receive the maximum level of support and to ensure that agencies are not paying customers in excess of customer project costs. If agencies, administrators, community choice aggregators (CCA), and utilities do not mutually share data, they run the risk of customer free ridership and claiming beneficial market intervention when none occurred in practice. PG&E will continue</p>	<p>Enabling customers to stack available incentives means that some customers who wouldn’t be able to fund charging infrastructure with EVC 2 funds alone will be able to proceed with the electrification plans. That each dollar of EVC 2 can go further is a way of maximizing ratepayer benefit from EVC 2.</p>

<p>to serve as the central aggregator of site information and disparate sources of funding for the EVC 2 program. PG&E will pursue partnerships with other organizations offering transportation electrification (TE) incentives and programs to explore how EVC 2 incentives can stack or complement with other TE program offerings, and vice versa. (Prepared Testimony, Chapter 3)</p>	
<p><i>PG&E Will Coordinate with Local Organizations to Facilitate Site Acquisition and Increase Customer Awareness, Notably in AB 841 PCs.</i> Building on coordination in EVCN, PG&E will continue to seek input, support, and collaboration opportunities on customer education and outreach from potential partners (like CCAs and Community-Based Organizations) to facilitate site acquisition, improve program participation, and enhance the customer experience, especially in AB 841 PCs. (Prepared Testimony, Chapter 6)</p>	<p>Local organizations oftentimes have important insights about what a community's needs, and what criteria will make an EV project in their community successful. Coordination with local organizations thus maximizes ratepayer benefit.</p>
<p><i>PG&E Will Provide Incentives to Support Installation of EV Infrastructure During New Building Construction.</i> Nine sites involving new construction applied but were not accepted to EVCN because of the added complexity and longer timeframe associated with aligning EV project milestones with the broader new construction project milestones, which include much more complex designs. Furthermore, EVCN was initially approved as a three-year program, a duration which is shorter than many new construction timelines. EVC 2 is a five-year program, enabling PG&E to consider new construction project timelines. Additionally, PG&E will offer rebates for customer owned infrastructure in EVC 2 as opposed to a utility owned solution, to avoid creating the complexity the PG&E</p>	<p>Enabling new construction sites to participate in EVC 2 will allow for over 4x cost savings because co-timing charger installation with the initial electric design of a building may avoid the need for future costly retrofits to accommodate EV charging.⁷ By incorporating rebates for new construction sites into EVC 2, PG&E can also take advantage of the robust ME&O efforts and share program administration costs that will be deployed for the program, rather than proposing EV rebates for new construction under a separate application as authorized in D.21 07 028. Including new construction rebates in EVC 2 rather than treating as a separate program allows for a more efficient use of ratepayer funds.</p>

⁷ Report: Energy Solutions and PG&E, [PEV Infrastructure Cost-Effectiveness Report for San Francisco Final, November 2016, p. 6.](#)

project delivery team encountered in EVCN due to the need to align with broader new building design and engineering requirements and schedules. (Prepared Testimony, Chapter 3)	
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- c) Per D.21-07-028, Electrical Corporations must use the Assembly Bill (AB) 2127 report and updates to determine infrastructure needs. The AB 2127 Report concludes, “To meet the 2025 goal of 250,000 public and shared chargers, the state needs about 57,000 more than are currently planned, representing a 24 percent shortfall of Level 2 chargers and a 4 percent shortfall of DC fast chargers.”⁸ The report’s finding of the DC fast charging (DCFC) shortfall, along with its finding of the need for public charging, as detailed in the paragraphs below, influenced and supported PG&E’s decision to include a target of ~1,100 ports of DCFC in EVC 2.

A recent CEC study of charging distribution highlights that at the “census tract level, more chargers appear in census tracts with low population density than in tracts with high population density.”⁹ The authors of the AB 2127 Assessment concluded, “[T]his preliminary analysis indicates that more public charging investments may need to be targeted toward low-income communities and high-population-density neighborhoods to enable more proportionate charging infrastructure distribution throughout the state.”¹⁰ The AB 2127 report also notes that drivers who lack reliable charging at home or work, including those who do not live in single-family homes, will rely on public charging for their mobility needs.¹¹ Accordingly, EVC 2 will help bridge the gap between low-density and high-density charger availability by supporting installation of infrastructure for charging ports to serve MFH residents, including through ~6,400 L2 ports onsite at MFH as well as ~8,500 L2 ports at workplaces and public destinations and ~1,100 DCFC ports at public destinations conveniently accessible by MFH residents.

Including the 16,000 total ports proposed in EVC 2, the number of charging ports approved in IOU TE programs to-date represent just four percent of those needed by 2030.¹² Although a small percentage of overall need, installation of ports through IOU programs helps address the adoption barrier presented by a lack of charging infrastructure.

⁸ California Energy Commission, Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Analyzing Charging Needs to Support ZEVs in 2030. Page 28. Published July 14, 2021.

⁹ CEC SB 1000 Study, discussed on pp. 14-17 of CEC AB 2127 Assessment, Available here: [TN238853_20210714T100900_Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Anal.pdf](#) (Accessed October 14, 2021).

¹⁰ *Ibid.* p. 17.

¹¹ *Ibid.* p. 28.

¹² PG&E calculates the four percent based on a total of 51,262 ports approved in IOU programs, of the 1.2 million ports needed to support the EO. (See D.16-01-023, D.16-01-045, D.16-12-065, D.18-05-040, D.19-11-017, D.20-08-045, D.21-04-014)

**Excerpt from Southern California Edison Company's
Charge Ready 2 Master Workpaper**

1. Charge Ready Infrastructure Site Budget Assumptions

2. Based on responses to RFPs in 2016 therefore 2016 dollars. Based on external ABE or "external planning" the costs in labor estimates file are what it takes for TEPM to implement program.

Frequency Percent									
Cost Category	4-6	7-13	14-20	21-28	29-36	37-43	44-50	51-57	Frequency
Capital Costs by Project Size (Number of Poles)									
Cost Category	1-3	4-6	7-13	14-20	21-28	29-36	37-43	44-50	Frequency
1 Transformer	5	12,129	11,230	11,230	11,230	31,229			100%
2 Pole	5	7,845	7,845	7,845	7,845	7,845			
3 Pole	5	7,845	7,845	7,845	7,845	7,845			
4 Pole	5	7,845	7,845	7,845	7,845	7,845			
5 Pole	5	7,845	7,845	7,845	7,845	7,845			
6 Pole	5	7,845	7,845	7,845	7,845	7,845			
7 Pole	5	7,845	7,845	7,845	7,845	7,845			
8 Pole	5	7,845	7,845	7,845	7,845	7,845			
9 Pole	5	7,845	7,845	7,845	7,845	7,845			
10 Pole	5	7,845	7,845	7,845	7,845	7,845			
11 Pole	5	7,845	7,845	7,845	7,845	7,845			
12 Pole	5	7,845	7,845	7,845	7,845	7,845			
13 Pole	5	7,845	7,845	7,845	7,845	7,845			
14 Pole	5	7,845	7,845	7,845	7,845	7,845			
15 Pole	5	7,845	7,845	7,845	7,845	7,845			
16 Pole	5	7,845	7,845	7,845	7,845	7,845			
17 Pole	5	7,845	7,845	7,845	7,845	7,845			
18 Pole	5	7,845	7,845	7,845	7,845	7,845			
19 Pole	5	7,845	7,845	7,845	7,845	7,845			
20 Pole	5	7,845	7,845	7,845	7,845	7,845			
21 Pole	5	7,845	7,845	7,845	7,845	7,845			
22 Pole	5	7,845	7,845	7,845	7,845	7,845			
23 Pole	5	7,845	7,845	7,845	7,845	7,845			
24 Pole	5	7,845	7,845	7,845	7,845	7,845			
25 Pole	5	7,845	7,845	7,845	7,845	7,845			
26 Pole	5	7,845	7,845	7,845	7,845	7,845			
27 Pole	5	7,845	7,845	7,845	7,845	7,845			
28 Pole	5	7,845	7,845	7,845	7,845	7,845			
29 Pole	5	7,845	7,845	7,845	7,845	7,845			
30 Pole	5	7,845	7,845	7,845	7,845	7,845			
31 Pole	5	7,845	7,845	7,845	7,845	7,845			
32 Pole	5	7,845	7,845	7,845	7,845	7,845			
33 Pole	5	7,845	7,845	7,845	7,845	7,845			
34 Pole	5	7,845	7,845	7,845	7,845	7,845			
35 Pole	5	7,845	7,845	7,845	7,845	7,845			
36 Pole	5	7,845	7,845	7,845	7,845	7,845			
37 Pole	5	7,845	7,845	7,845	7,845	7,845			
38 Pole	5	7,845	7,845	7,845	7,845	7,845			
39 Pole	5	7,845	7,845	7,845	7,845	7,845			
40 Pole	5	7,845	7,845	7,845	7,845	7,845			
41 Pole	5	7,845	7,845	7,845	7,845	7,845			
42 Pole	5	7,845	7,845	7,845	7,845	7,845			
43 Pole	5	7,845	7,845	7,845	7,845	7,845			
44 Pole	5	7,845	7,845	7,845	7,845	7,845			
45 Pole	5	7,845	7,845	7,845	7,845	7,845			
46 Pole	5	7,845	7,845	7,845	7,845	7,845			
47 Pole	5	7,845	7,845	7,845	7,845	7,845			
48 Pole	5	7,845	7,845	7,845	7,845	7,845			
49 Pole	5	7,845	7,845	7,845	7,845	7,845			
50 Pole	5	7,845	7,845	7,845	7,845	7,845			
51 Pole	5	7,845	7,845	7,845	7,845	7,845			
52 Pole	5	7,845	7,845	7,845	7,845	7,845			
53 Pole	5	7,845	7,845	7,845	7,845	7,845			
54 Pole	5	7,845	7,845	7,845	7,845	7,845			
55 Pole	5	7,845	7,845	7,845	7,845	7,845			
56 Pole	5	7,845	7,845	7,845	7,845	7,845			
57 Pole	5	7,845	7,845	7,845	7,845	7,845			
58 Pole	5	7,845	7,845	7,845	7,845	7,845			
59 Pole	5	7,845	7,845	7,845	7,845	7,845			
60 Pole	5	7,845	7,845	7,845	7,845	7,845			
61 Pole	5	7,845	7,845	7,845	7,845	7,845			
62 Pole	5	7,845	7,845	7,845	7,845	7,845			
63 Pole	5	7,845	7,845	7,845	7,845	7,845			
64 Pole	5	7,845	7,845	7,845	7,845	7,845			
65 Pole	5	7,845	7,845	7,845	7,845	7,845			
66 Pole	5	7,845	7,845	7,845	7,845	7,845			
67 Pole	5	7,845	7,845	7,845	7,845	7,845			
68 Pole	5	7,845	7,845	7,845	7,845	7,845			
69 Pole	5	7,845	7,845	7,845	7,845	7,845			
70 Pole	5	7,845	7,845	7,845	7,845	7,845			
71 Pole	5	7,845	7,845	7,845	7,845	7,845			
72 Pole	5	7,845	7,845	7,845	7,845	7,845			
73 Pole	5	7,845	7,845	7,845	7,845	7,845			
74 Pole	5	7,845	7,845	7,845	7,845	7,845			
75 Pole	5	7,845	7,845	7,845	7,845	7,845			
76 Pole	5	7,845	7,845	7,845	7,845	7,845			
77 Pole	5	7,845	7,845	7,845	7,845	7,845			
78 Pole	5	7,845	7,845	7,845	7,845	7,845			
79 Pole	5	7,845	7,845	7,845	7,845	7,845			
80 Pole	5	7,845	7,845	7,845	7,845	7,845			
81 Pole	5	7,845	7,845	7,845	7,845	7,845			
82 Pole	5	7,845	7,845	7,845	7,845	7,845			
83 Pole	5	7,845	7,845	7,845	7,845	7,845			
84 Pole	5	7,845	7,845	7,845	7,845	7,845			
85 Pole	5	7,845	7,845	7,845	7,845	7,845			
86 Pole	5	7,845	7,845	7,845	7,845	7,845			
87 Pole	5	7,845	7,845	7,845	7,845	7,845			
88 Pole	5	7,845	7,845	7,845	7,845	7,845			
89 Pole	5	7,845	7,845	7,845	7,845	7,845			
90 Pole	5	7,845	7,845	7,845	7,845	7,845			
91 Pole	5	7,845	7,845	7,845	7,845	7,845			
92 Pole	5	7,845	7,845	7,845	7,845	7,845			
93 Pole	5	7,845	7,845	7,845	7,845	7,845			
94 Pole	5	7,845	7,845	7,845	7,845	7,845			
95 Pole	5	7,845	7,845	7,845	7,845	7,845			
96 Pole	5	7,845	7,845	7,845	7,845	7,845			
97 Pole	5	7,845	7,845	7,845	7,845	7,845			
98 Pole	5	7,845	7,845	7,845	7,845	7,845			
99 Pole	5	7,845	7,845	7,845	7,845	7,845			
100 Pole	5	7,845	7,845	7,845	7,845	7,845			
101 Pole	5	7,845	7,845	7,845	7,845	7,845			
102 Pole	5	7,845	7,845	7,845	7,845	7,845			
103 Pole	5	7,845	7,845	7,845	7,845	7,845			
104 Pole	5	7,845	7,845	7,845	7,845	7,845			
105 Pole	5	7,845	7,845	7,845	7,845	7,845			
106 Pole	5	7,845	7,845	7,845	7,845	7,845			
107 Pole	5	7,845	7,845	7,845	7,845	7,845			
108 Pole	5	7,845	7,845	7,845	7,845	7,845			
109 Pole	5	7,845	7,845	7,845	7,845	7,845			
110 Pole	5	7,845	7,845	7,845	7,845	7,845			
111 Pole	5	7,845	7,845	7,845	7,845	7,845			
112 Pole	5	7,845	7,845	7,845	7,845	7,845			
113 Pole	5	7,845	7,845	7,845	7,845	7,845			
114 Pole	5	7,845	7,845	7,845	7,845	7,845			
115 Pole	5	7,845	7,845	7,845	7,845	7,845			
116 Pole	5	7,845	7,845	7,845	7,845	7,845			
117 Pole	5	7,845	7,845	7,845	7,845	7,845			
118 Pole	5	7,845	7,845	7,845	7,845	7,845			
119 Pole	5	7,845	7,845	7,845	7,845	7,845			
120 Pole	5	7,845	7,845	7,845	7,845	7,845			
121 Pole	5	7,845	7,845	7,845	7,845	7,845			
122 Pole	5	7,845	7,845	7,845	7,845	7,845			
123 Pole	5	7,845	7,845	7,845	7,845	7,845			
124 Pole	5	7,845	7,845	7,845	7,845	7,845			
125 Pole	5	7,845	7,845	7,845	7,845	7,845			
126 Pole	5	7,845	7,845	7,845	7,845	7,845			
127 Pole	5	7,845	7,845	7,845	7,845	7,845			
128 Pole	5	7,845	7,845	7,845	7,845	7,845			
129 Pole	5	7,845	7,845	7,845	7,845	7,845			
130 Pole	5	7,845	7,845	7,845	7,845	7,845			
131 Pole	5	7,845	7,845	7,845	7,845	7,845			
132 Pole	5	7,845	7,845	7,845	7,845	7,845			
133 Pole	5	7,845	7,845	7,845	7,845	7,845			
134 Pole	5	7,845	7,845	7,845	7,845	7,845			
135 Pole	5	7,845	7,845	7,845	7,845	7,845			
136 Pole	5	7,845	7,845	7,845	7,845	7,845			
137 Pole	5	7,845	7,845	7,845	7,845	7,845			
138 Pole	5	7,845	7,845	7,845	7,845	7,845			
139 Pole	5	7,845	7,845	7,845	7,845	7,845			
140 Pole	5	7,845	7,845	7,845	7,845	7,845			
141 Pole	5	7,845	7,845	7,845	7,845	7,845			
142 Pole	5	7,845	7,845	7,845	7,845	7,845			
143 Pole	5	7,845	7,845	7,845	7,845	7,845			
144 Pole	5	7,845	7,845	7,845	7,845	7,845			
145 Pole	5	7,845	7,845	7,845	7,845	7,845			
146 Pole	5	7,845	7,845	7,845	7,845	7,845			
147 Pole	5	7,845	7,845	7,845	7,845	7,845			
148 Pole	5	7,845	7,845	7,845	7,845	7,845			
149 Pole	5	7,845	7,845	7,845	7,845	7,845			
150 Pole	5	7,845	7,845	7,845	7,845	7,845			
151 Pole	5	7,845	7,845	7,845	7,845	7,845			
152 Pole	5	7,845							

**Excerpt from Attachment 1 to Pacific Gas and Electric's
Response to Cal Advocates Data Request
ElectricVehicleCharge2_DR_CalAdvocates_001, Question
8(ii)**

ESCALATION FACTORS ¹		2021	2022	2023	2024	2025	2026	2027	2028	2029
Expense			1.017	1.027	1.043	1.059	1.077	1.096	1.115	1.135

CUSTOMER-OWNED, COST PER PORT		2021 ²	2022	2023	2024	2025	2026	2027	2028	2029
Charge Owner, AB 841 PC, L2, MFH ³		\$ 16,506	\$ 16,787	\$ 16,954	\$ 17,209	\$ 17,484	\$ 17,781	\$ 18,084	\$ 18,409	\$ 18,741
Charge Owner, AB 841 PC, L2, WP/Public		\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
Charge Owner, AB 841 PC, DCFC, Public		\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000	\$ 67,000
Charge Owner, AB 841 PC, New Construction		\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000
Charge Owner, Non-AB 841 PC, L2, MFH		\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
Charge Owner, Non-AB 841 PC, L2, WP/Public		\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Charge Owner, Non-AB 841 PC, New Construction		\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000

CUSTOMER-OWNED, PORTS		2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Charge Owner, AB 841 PC, L2, MFH					7	16	29	38	42		132
Charge Owner, AB 841 PC, L2, WP/Public					32	77	140	185	203		637
Charge Owner, AB 841 PC, DCFC, Public					14	33	61	80	88		276
Charge Owner, AB 841 PC, New Construction					100	240	440	580	640		2,000
Charge Owner, Non-AB 841 PC, L2, MFH					94	225	412	543	598		1,872
Charge Owner, Non-AB 841 PC, L2, WP/Public					298	714	1,309	1,725	1,903		5,949
Charge Owner, Non-AB 841 PC, New Construction					100	240	440	580	640		2,000
TOTAL CUSTOMER-OWNED, PORTS		-	-	-	645	1,545	2,831	3,731	4,114	-	12,866

CUSTOMER-OWNED, REBATE		2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Charge Owner, AB 841 PC, L2, MFH	\$	-	\$ -	\$ -	\$ 120,461	\$ 279,746	\$ 515,659	\$ 687,178	\$ 773,184	\$ -	\$ 2,376,229
Charge Owner, AB 841 PC, L2, WP/Public		-	-	-	384,000	924,000	1,680,000	2,220,000	2,436,000	-	7,644,000
Charge Owner, AB 841 PC, DCFC, Public		-	-	-	938,000	2,211,000	4,087,000	5,360,000	5,896,000	-	18,492,000
Charge Owner, AB 841 PC, New Construction		-	-	-	400,000	960,000	1,760,000	2,320,000	2,560,000	-	8,000,000
Charge Owner, Non-AB 841 PC, L2, MFH		-	-	-	1,128,000	2,700,000	4,944,000	6,516,000	7,176,000	-	22,464,000
Charge Owner, Non-AB 841 PC, L2, WP/Public		-	-	-	2,980,000	7,140,000	13,090,000	17,250,000	19,030,000	-	59,490,000
Charge Owner, Non-AB 841 PC, New Construction		-	-	-	400,000	960,000	1,760,000	2,320,000	2,560,000	-	8,000,000
TOTAL CUSTOMER-OWNED, REBATE	\$	-	\$ -	\$ -	\$ 6,350,461	\$ 15,174,746	\$ 27,836,659	\$ 36,673,178	\$ 40,431,184	\$ -	\$ 126,466,229

Notes:

- ¹ See ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, filed on November 18, 2021, 'Ch. 7 - Escalation Rates' tab
- ² See ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, filed on November 18, 2021, 'Ch. 7 - Per-Port Cost' tab, which explains PG&E's utility cost coverage methodology
- ³ For Customer-Owned segments, the EVC 2 Program applies escalation only to Charge Owner, AB 841 PC, L2, MFH sites.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 8**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q08		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q08		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 08

a) Please state the basis for, and provide documents demonstrating, how PG&E calculated the costs for the following cost categories of its proposed EVC 2 program:

- i. Costs for cancelled projects. Specifically, state the basis for, and provide documents demonstrating how PG&E estimated the costs for the following cost categories of its proposed EVC 2 program. Specifically, state the basis for, and provide documents demonstrating, how PG&E estimated the costs for its Grid Visibility Tool. for how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 1.
- ii. Costs for rebates. Specifically state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Exp Proj Costs", lines 7-13.
- iii. Cost for its Equity Initiative Program. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 6-4 – Equity Initiatives", lines 1-5.
- iv. Cost for its EV Savings Calculator. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 5. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.
- v. Cost for its EV Site Prioritization Tool. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 6. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.
- vi. Costs for IT. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – IT", lines 1-5. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.

- vii. Costs for marketing, education, and outreach (ME&O). Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 6-3 – MEO", lines 1-6.
- viii. Costs for preliminary design and ROM process. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 12. Additionally, define "ROM".
- ix. Costs for a program evaluator. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 13.
- x. Costs for a program survey. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 14.
- xi. Cost for site host data application programming interface (API). state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 15. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.

ANSWER 08

- i. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.i' tab, in support of its cancelled project forecast. Using EVCN cancelled project data as of September 2021, PG&E estimated roughly \$80 per port in cancelled project costs. Applying this figure to EVC 2's 12,000 ports (excluding 4,000 New Construction ports), PG&E anticipates roughly \$1.0M in EVC 2 cancelled project costs.

For the Grid Visibility Tool, PG&E developed its forecast by consulting with its internal operations team and relying upon its experience developing the EV Savings Calculator for existing EV programs. This funding will allow for future development of the Tool.
- ii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.ii' tab, in support of its Customer-owned Rebate forecast. As noted in the tab, the forecast is derived from data already provided in PG&E's EVC 2 workpapers ("ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx").
- iii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.iii' tab, in support of its Equity Initiatives cost proposal. The team developed costs for the Equity Initiatives by consulting with internal teams with similar experience conducting customer outreach and engagement.

- iv. For the EV Savings Calculator, PG&E developed its EVC 2 forecast by consulting with its internal operations team and using benchmark data from recent engagements with the vendor who supports PG&E's EV Savings Calculator. This funding will be used to enhance PG&E's current EV Savings Calculator, potentially by allowing customers to research if they're in an AB841 prioritized community so they are aware of the incentives they are eligible for, and improve the customer experience given EVC 2's expanded scope.
- v. For the EV Site Prioritization Tool, PG&E consulted with its internal operations team and third-party vendor to develop the forecast. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.v' tab, which lists the Tool's cost components.
- vi. For IT, PG&E developed its EVC 2 forecast by consulting with its internal operations and IT teams and relying upon actual EVCN and other CET program costs. Details can be found in PG&E's EVC 2 workpapers ("ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx"), 'Ch. 7 – IT' tab.
- vii. The basis for and explanations of PG&E's marketing, education and outreach (ME&O) included on lines 1-6 on PG&E's workpaper Ch. 6-3 are developed largely using EVCN Phase 1 experience as guidance with a detailed breakdown provided below. The costs are based on how many leads we expect to generate for the program.

Overall:

PG&E aims to generate approximately 8,000 leads submitted over the course of the program. From those leads, we anticipate 50% will turn into completed applications (approximately 4,000) and 25% of the completed applications will result in completed sites (approximately 1,000.)

PG&E estimates that ME&O will achieve ~80% of the overall 8,000 leads goal with the remaining ~20% coming from the CBO outreach that is discussed in the equity chapter of testimony.

Details on the assumptions for each of the 6 line-items are as follows:

Line 1: Direct-to-Customer (Email, Direct Mail, Teleservices)

PG&E expects to attain 2,155 customer leads from Direct-to-Customer outreach channels with 650 in Year 1, 650 in Year 2, 360 in Year 3, 300 in Year 4 and 195 in Year 5. Details for these channels are as follows:

Teleservices: 1:1 phone call with trained representatives to have a deeper conversation about the program details and drive program interest and encourage application submission. Identified leads that are not ready to submit-an-application would be nurtured over time with our internal relationship managers.

Email: Multi-touch email campaigns are planned to engage and inform the target audience on the program, identify key decision makers, and drive customer acquisition online.

Direct Mail: A direct mail campaign, in which PG&E plans to send mailers to site hosts with key messaging that specifically targets different types of customers.; Direct mail will provide an entry point into the conversation with customers and continue to educate them on the program over time.

Line 2: Digital Media

PG&E expects to attain 740 customer leads from digital media with 410 in Year 1, 205 in Year 2, and 125 in Year 3. Details for this channel are as follows:

Digital media including online search, online display and social media will educate the target audience-online and drive them to learn more information about the program via PG&E's website as well as. provide an opportunity to complete a customer interest form and become a lead.

Social media will include targeted paid posts to key customer segments promoting program participation. Similar-to Teleservices, the Digital Media budget is planned to start with a higher volume of outreach-and decline in future years as program awareness increases and the program nears its goals. The budget assumes there will not be a need to be in market in Year 4 and 5. This enables resources to be allocated to other channels that are better able to nurture engaged customers to the application and contract stages.

Line 3: Relationship Management Support (BES/Public Affairs)

PG&E expects to attain 4,150 customer leads from relationship management support with 660 in Year 1, 1,000 in Year 2, 1,000 in Year 3, 830 in Year 4, and 660 in Year 5. details for this channel are as follows:

Customer Relationship Managers strong relationships with many potential site hosts will be utilized to provide educational materials and program collateral to help drive program enrollment. They will work directly with customers to provide information about the program, answer questions, provide application assistance, and provide guidance on how this program can tie into more comprehensive electrification efforts.

Line 4: Non-AB 841 PC Utilization Site Events and Stakeholder Outreach

The basis and explanation for Non-AB 841 PC Utilization Site Events and Stakeholder Outreach are as follows:

PG&E will select sites in communities with lower utilization rates and work with the site hosts to execute events to educate the local community on the benefits of EV adoption as well as promote the charging infrastructure to increase utilization.

PG&E estimates \$100,000 for creation of event materials in year 1 and 2 events per year at \$50,000 per event (using event costs for the CARE program as a benchmark.) PG&E intends on using targeted channels such as

paid social and potentially local print near event locations to help increase attendance cost efficiently.

PG&E intends to develop co-marketing opportunities that may consist of creating or hosting joint webinars along with co-branding of sales materials. Co-marketing helps fulfill a mutual benefit of extending target audience reach and amplifying efforts to acquire EV charger installations.

Line 5: PG&E Marketing Labor Support

PG&E estimates needing marketing labor support equivalent to 1.50 Full Time Employees in Years 1 through Year 4, 1.25 Full Time Employees in Year 5 and .25 Full Time Employees in Years 6 and 7. The basis and explanation are as follows: The labor costs include support from internal PG&E marketing labor related to strategy, planning, execution, monitoring, project management, regulatory support, and reporting.

Line 6: Agency Creative and Execution and Support Materials

The basis and explanation for agency creative execution and support materials is as follows:

These costs include creative development utilized for the work noted above for Lines 1-5. In addition, the scope includes developing digital materials for Demand Response/VGI program communications not covered in EVCN Phase 1's scope. It also includes costs for production of printed materials to support acquisition and utilization efforts including brochures, digital toolkit, 2-3 video testimonials and any additional in-market needs that arise during the life of the program.

- viii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.viii' tab, in support of its Preliminary Design and ROM Process forecast. Using EVCN preliminary engineering data as of September 2021 to cover design and ROM costs, PG&E estimated roughly \$311 per port in design and ROM costs. Applying this figure to EVC 2's 12,000 ports (excluding 4,000 New Construction ports), PG&E estimated roughly \$3.7M in preliminary design and ROM process costs. For program simplicity, this figure has been rounded down to \$3.5M in the EVC 2 application.
- ix. PG&E is aware the Commission authorized SDG&E to spend three percent of its \$43.5M PYD Extension budget on third-party evaluator efforts¹ and SCE one percent of its CR2 budget to fund third-party evaluation efforts.² To be conservative, and the scale of EVC 2 more aligned with SCE's CRD 2 program, PG&E has applied one percent to its EVC 2 budget. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.ix' tab, in support of its \$2.8M Program Evaluator forecast.

¹ [378429298.PDF \(ca.gov\)](#), p. 89 of the PDF

² [345702701.PDF \(ca.gov\)](#), p. 130 of the PDF

- x. For the Program Survey, PG&E developed its forecast by consulting with its internal operations team and by benchmarking against costs of other surveys PG&E has conducted for existing EV programs. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.x' tab, which lists the various cost components of the Program Survey.
- xi. For the Site Host Data API, PG&E developed its EVC 2 forecast by consulting with its internal operations team and relying upon its experience creating API connectivity for the EVCN program.

**Excerpt from Attachment 1 to Pacific Gas and Electric's
Response to Cal Advocates Data Request
ElectricVehicleCharge2_DR_CalAdvocates_001, Question
12(b)**

ESCALATION FACTORS ¹		2021	2022	2023	2024	2025	2026	2027	2028	2029
Capital		1.000	1.026	1.054	1.082	1.111	1.141	1.172	1.204	1.236

UTILITY-OWNED, COST PER PORT		2021 ²	2022	2023	2024	2025	2026	2027	2028	2029
Charge Owner, AB 841 PC, L2, WP/Public		\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317	\$ 12,317
Charge Owner, AB 841 PC, DCFC, Public		\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221	\$ 67,221
Charge Sponsor, AB 841 PC, L2, MFH ³		\$ 16,506	\$ 16,935	\$ 17,392	\$ 17,862	\$ 18,344	\$ 18,840	\$ 19,348	\$ 19,871	\$ 20,407

UTILITY-OWNED, PORTS		2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Charge Owner, AB 841 PC, L2, WP/Public					96	230	421	555	611		1,913
Charge Owner, AB 841 PC, DCFC, Public					41	99	182	239	264		825
Charge Sponsor, AB 841 PC, L2, MFH					20	48	88	114	126		396
TOTAL UTILITY-OWNED, PORTS		-	-	-	157	377	691	908	1,001	-	3,134

UTILITY-OWNED, PROJECT COSTS		2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Charge Owner, Non-AB 841 PC, L2, MFH		-	-	-	1,182,398	2,832,828	5,185,307	6,835,737	7,525,469	-	23,561,740
Charge Owner, Non-AB 841 PC, L2, WP/Public		-	-	-	2,756,061	6,654,879	12,234,222	16,065,819	17,746,344	-	55,457,325
Charge Owner, Non-AB 841 PC, New Construction		-	-	-	357,240	880,525	1,657,882	2,205,699	2,503,701	-	7,605,047
TOTAL UTILITY OWNED, PROJECT COSTS		\$ -	\$ -	\$ -	\$ 4,295,699	\$ 10,368,232	\$ 19,077,411	\$ 25,107,255	\$ 27,775,514	\$ -	\$ 86,624,112

Notes:¹ See ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, filed on November 18, 2021, 'Ch. 7 - Escalation Rates' tab² See ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, filed on November 18, 2021, 'Ch. 7 - Per-Port Cost' tab, which explains PG&E's utility cost coverage methodology³ For Utility-Owned segments, the EVC 2 Program applies escalation only to Charge Sponsor, AB 841 PC, L2, MFH sites.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 12**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q12		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q12		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 12

- a) Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Per-Port Cost", please explain the value shown in the column "BTM %". For example, is the "71.00%" shown for "Charge Owner, AB 841 PC, L2, WP/Public" mean that in EVCN, 71% of AB 841 PC, L2, Workplace or Public ports required BTM infrastructure upgrades, while 29% did not?
- b) Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Capital Proj Costs" please provide calculations showing how PG&E calculated all costs in lines 1-13.7 - Capital Proj Costs" please state the basis for, and provide documents demonstrating, how PG&E calculated all costs in lines 1-13.
- c) Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Capital PM Hours", PG&E states that it bases the per hour costs on historic costs in PG&E's EVCN and DCFC programs.
 - a. Please provide a list of the tasks performed by project management for EVCN.
 - b. Please explain why the number of project management hours is determined by the number of EVSE ports that PG&E deploys, rather than the number of sites.
- d) Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Per-Port O&M Costs", please state the basis for, and provide documents demonstrating, how PG&E calculated the documents used to calculate the cost information shown in lines 2-4.
- e) Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Internal Labor Costs", please provide the following:
 - a. In lines 1-22, state the basis for how PG&E calculated the number of employees working on EVC 2 program.
 - b. In lines 57-78, state the basis for how PG&E calculated the percent of time each employee category would work on EVC 2.

ANSWER 12

- a) The data shown in the “BTM %” column represents the behind-the-meter (BTM) portion of actual EVCN project costs. Because many cost categories in EVCN were not recorded as either BTM- or TTM-specific, for the purposes of calculating EVC 2 cost targets, the BTM portion of costs from EVCN are calculated based on the ratio of BTM labor to TTM labor.
- b) PG&E has provided attachment “ElectricVehicleCharge2_DR_Cal Advocates_001-Q12Atch01.xlsx”, ‘Q12.b’ tab, in support of its Utility-owned project cost forecast. As noted in the tab, the forecast is derived from data provided in PG&E’s EVC 2 workpapers (“ ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx”).
- c)
- a. For EVCN, Project Manager responsibilities may have included, but were not limited to, the following:
 - Coordination of design, including any required permits from the administrator having jurisdiction (AHJ)
 - Coordination of easement, right of way, traffic, or other related issues with various departments
 - Assignment of project to contractors
 - Requesting cost proposals and construction schedules from the selected contractor
 - Coordinating site visits with interested parties such as site hosts (SH), design engineers, contractors, and Program Managers
 - Working with SH to determine tax status and applicable rate schedule for EV charging stations
 - Conducting weekly meetings with contractor to determine the status of the multiple projects assigned to them and forecasting future issues or requirements
 - Coordinating clearances (planned outages), inspections (internal and by AHJ), and other construction related milestones with contractor and interested parties
 - Providing data on various stages of project completion to monitor and track the project health and history documentation
 - Reviewing invoices, purchase orders, change orders, and material requisitions
 - Negotiating changes in the field for various reasons including unforeseen circumstances, requested changes
 - Monitoring and coordination of site activation
 - Holding site closeout walk with contractor
 - Managing the internal closing out of each project
 - b. Based on EVCN, PG&E learned ports counts and the corresponding resource needs to complete a project can vary from site to site. As a result, forecasting costs on a per port basis is more appropriate for the EVC 2 program. For example, EVCN sites had a minimum of ten ports per site and a maximum of 100+ ports per site.
- d) PG&E has provided attachment “ElectricVehicleCharge2_DR_Cal Advocates_001-Q12Atch01.xlsx”, ‘Q12.d’ tab, in support of its O&M cost forecast. Using EVCN O&M estimates provided by internal teams, PG&E

calculated O&M costs on a per port basis. Depending on the O&M cost category, these per-port figures ranged from approximately \$100 to \$900 per port, covering a 5-year period.

- e) PG&E gathered input from internal leaders to identify the number of employees and percent of time needed for EVC 2. These inputs are reflected in PG&E's EVC 2 workpapers (" ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx"), 'Ch. 7 - Internal Labor Costs' tab.

**Pacific Gas and Electric's Response to SBUA's Data Request
001, Question 3**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	SBUA 001-Q03		
PG&E File Name:	ElectricVehicleCharge2 DR SBUA 001-Q03		
Request Date:	December 15, 2021	Requester DR No.:	001
Date Sent:	January 14, 2022	Requesting Party:	Small Business Utility Advocates
PG&E Witness:		Requester:	Jeff Winmill

QUESTION 03

Re: Ch. 3, Table 3-1. PG&E's program proposes to fund behind-the-meter (BTM) make-ready infrastructure. Please provide a breakdown of costs for each EV infrastructure program between BTM, distribution, and other cost categories for the following programs, disaggregated by the program components used in its applications and subsequent program reports, such as the components identified in Table 3-1 for EV Charge 2:

- a. Electric Vehicle Charge Network (EVCN);
- b. Electric Vehicle Fast Charge; and
- c. Any other existing or proposed program offered by PG&E, excluding single-family residential programs.

ANSWER 03

PLEASE NOTE, THE ATTACHMENT TO THIS RESPONSE CONTAINS CONFIDENTIAL INFORMATION DESCRIBED IN THE ACCOMPANYING DECLARATION DATED JANUARY 14, 2022.

- a. Please see PG&E's response to SBUA_001-Q4.
- b. Provided in attachment "ElectricVehicleCharge2_DR_SBUA_001-Q03Atch01CONF.xlsx," 'Q3.b - CONF' tab, PG&E has included DC Fast Charge program cost information. This data is based on three sites and may not be representative of the final program averages.
 - Column C & D:
 - i. Provided in "Q3.b - CONF' tab, Column D; this value represents an estimate of the share of site costs that are attributed to TTM based on the percentage of labor that was allocated to TTM by the contractor. Column C represents total actual construction costs for the site (TTM+BTM).
 - ii. Please note that the TTM data produced in response to this question relates specifically to historic costs associated with an existing program; however, following the passage of AB 841 and Resolution E-5167, all forecasted TTM data will be performed under PG&E's Rule 29: Electric Vehicle Infrastructure Rule and is not included in A.21-01-

010, pursuant to PUC section 740.19. Any forecasted TTM questions can be directed toward PG&E's GRC submission.

- Column E:
 - i. Provided in 'Q3.b - CONF' tab, Column E; this value represents an estimate of the share of site costs that are attributed to BTM based on the percentage of labor that was allocated to BTM by the contractor, column C represents total actual construction costs for the site (TTM+BTM).
- Column F:
 - i. Provided in 'Q3.b - CONF' tab, Column F; this is the maximum rebate amount that a site is eligible for but may not represent the actual amount paid to a site for those sites that have not yet received rebates.
- c. In regards to other existing or proposed programs offered, PG&E also has the EV Fleet Program. However, the EV Fleet Program is focused on medium- and heavy-duty vehicles, not light duty as in the case for the EVC 2 proceeding. Additionally, PG&E has only constructed the TTM on sites that have been completed to-date and provided incentives to site hosts to offset the costs that they have incurred for BTM construction. This means that the EV Fleet Program does not have good visibility into BTM construction costs.

**Excerpt from Southern California Edison Company's CR2
Master Workpapers – CR 2 Portfolio (Four Year)**

1 Charge Ready Cost Summary

		Year 0	Year 1	Year 2	Year 3	Year 4	GRAND TOTAL
2							
3	2018 \$						
4	Capital Cost						
5	Utility-side Costs (make-ready)	\$ -	\$ 26,092,963	\$ 39,139,445	\$ 39,139,445	\$ 26,092,963	\$ 130,464,816
6	Utility Work (L2)	\$ -	\$ 22,441,358	\$ 33,662,038	\$ 33,662,038	\$ 22,441,358	\$ 112,206,792
7	Utility Work (DCFC Adder)	\$ -	\$ 1,279,517	\$ 1,919,276	\$ 1,919,276	\$ 1,279,517	\$ 6,397,586
8	Contingency	\$ -	\$ 2,372,088	\$ 3,558,131	\$ 3,558,131	\$ 2,372,087.56	\$ 11,860,438
9	Customer-Site Cost (make-ready)	\$ -	\$ 79,061,975	\$ 118,592,962	\$ 118,592,962	\$ 79,061,975	\$ 395,309,874
10	A&E Administration (e.g., design, permittin	\$ -	\$ 19,915,589	\$ 29,873,384	\$ 29,873,384	\$ 19,915,589	\$ 99,577,945
11	Customer Infrastructure (L2)	\$ -	\$ 51,704,655	\$ 77,556,982	\$ 77,556,982	\$ 51,704,655	\$ 258,523,273
12	Customer Infrastructure (DCFC Adder)	\$ -	\$ 254,279	\$ 381,418	\$ 381,418	\$ 254,279	\$ 1,271,395
13	Contingency	\$ -	\$ 7,187,452	\$ 10,781,178	\$ 10,781,178	\$ 7,187,452.26	\$ 35,937,261
14	Ownership Station Cost (Incremental)	\$ -	\$ 3,231,268	\$ 4,846,902	\$ 4,846,902	\$ 3,231,268	\$ 16,156,339
15	Non-labor (Capital)	\$ 1,138,750	\$ 262,500	\$ 262,500	\$ 262,500	\$ 131,250	\$ 2,057,500
16	Labor (Capital)	\$ 45,855	\$ 3,398,283	\$ 5,067,324	\$ 5,073,335	\$ 3,368,183	\$ 16,952,980
17	TEPM	\$ 3,360	\$ 3,217,453	\$ 4,826,180	\$ 4,826,180	\$ 3,217,453	\$ 16,090,626
18	CP&S - Prod. Dev.	\$ 33,581	\$ 47,600	\$ 47,600	\$ 50,997	\$ 23,800	\$ 203,579
19	CP&S - Marketing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	BCD	\$ -	\$ 63,489	\$ 95,234	\$ 95,234	\$ 63,489	\$ 317,447
21	ATO	\$ 8,913	\$ 69,740	\$ 98,311	\$ 100,924	\$ 63,440	\$ 341,329
22	CSOD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23	IT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24							
25	Program O&M						
26	Non-labor (Expense)	\$ 125,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 200,000	\$ 550,000
27	Labor (Expense)	\$ 318,011	\$ 2,012,774	\$ 2,938,994	\$ 3,116,137	\$ 2,515,574	\$ 10,901,490
28	TEPM	\$ -	\$ 891,992	\$ 1,237,546	\$ 1,237,546	\$ 891,992	\$ 4,259,075
29	CP&S - Prod. Dev.	\$ 118,061	\$ 383,176	\$ 546,224	\$ 547,781	\$ 382,626	\$ 1,977,867
30	CP&S - Marketing	\$ 99,805	\$ 135,469	\$ 135,469	\$ 108,375	\$ 101,602	\$ 580,720
31	BCD	\$ 98,092	\$ 535,950	\$ 785,681	\$ 784,119	\$ 533,996	\$ 2,737,838
32	ATO	\$ 2,053	\$ -	\$ -	\$ 2,053	\$ -	\$ 4,107
33	CSOD	\$ -	\$ 66,188	\$ 234,074	\$ 436,263	\$ 605,358	\$ 1,341,883
34	IT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
35	Ownership and Operation O&M	\$ -	\$ 937,736	\$ 2,423,673	\$ 3,750,944	\$ 4,688,680	\$ 11,801,034
36	Rebate (L2)	\$ -	\$ 11,024,116	\$ 16,536,175	\$ 16,536,175	\$ 11,024,116	\$ 55,120,582
37	Rebate (DCFC)	\$ -	\$ 1,107,865	\$ 1,661,798	\$ 1,661,798	\$ 1,107,865	\$ 5,539,326
38	New Construction Rebate	\$ -	\$ 16,000,000	\$ 16,000,000	\$ 16,000,000	\$ 16,000,000	\$ 64,000,000
39	CR2 Marketing Campaign (Non-Labor)	\$ 950,000	\$ 2,331,000	\$ 2,730,000	\$ 1,836,000	\$ 1,895,000	\$ 9,742,000
40							
41	Market Education & Outreach						
42	ME&O	\$ -	\$ 10,505,360	\$ 9,363,840	\$ 11,304,320	\$ 10,354,300	\$ 41,527,820
43	Broad EV Awareness (Non-Labor)	\$ -	\$ 7,251,000	\$ 6,673,000	\$ 7,612,000	\$ 7,203,000	\$ 28,739,000
44	Customer Education (Labor)	\$ -	\$ 116,480	\$ 116,480	\$ 116,480	\$ 116,480	\$ 465,920
45	Customer Education (Non-Labor)	\$ -	\$ 2,121,000	\$ 1,636,000	\$ 2,121,000	\$ 1,636,000	\$ 7,514,000
46	TE Advisory Services (Labor)	\$ -	\$ 262,080	\$ 378,560	\$ 495,040	\$ 611,520	\$ 1,747,200
47	TE Advisory Services (Non-Labor)	\$ -	\$ 754,800	\$ 559,800	\$ 959,800	\$ 787,300	\$ 3,061,700
48	TOTAL	\$ 2,577,616	\$ 156,040,840	\$ 219,638,612	\$ 222,195,518	\$ 159,671,175	\$ 760,123,761
49							

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58 50%
59 50%
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61 50%
62 50%
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	Y0	Y1	Y2	Y3	Y4	TOTAL
Infrastructure Capital Utility	-	-	26,092,963	39,139,445	39,139,445	26,092,963
Infrastructure Capital Customer	-	-	82,293,243	123,439,864	123,439,864	82,293,243
Infrastructure Labor Utility	22,927	22,927	1,699,141	2,533,662	2,536,668	1,684,091
Infrastructure Labor Customer	22,927	22,927	1,699,141	2,533,662	2,536,668	1,684,091
Infrastructure NON Labor Utility	569,375	569,375	131,250	131,250	131,250	65,625
Infrastructure NON Labor Customer	569,375	569,375	131,250	131,250	131,250	65,625
Make Ready Rebate Expense	-	-	12,131,981	18,197,972	18,197,972	12,131,981
Ownership O&M Expense	-	-	937,736	2,423,673	3,750,944	4,688,680
Make Ready and Ownership Labor Expense	164,167	164,167	1,587,419	2,360,572	2,552,264	2,108,405
Make Ready and Ownership Non-Labor Expe	1,075,000	1,075,000	2,406,000	2,805,000	1,911,000	2,095,000
New Construction Labor Capital	-	-	-	-	-	-
New Construction Non Labor Capital	-	-	-	-	-	-
New Construction Labor Expense	153,844	153,844	425,355	578,421	563,873	407,169
New Construction Non Labor Expense	-	-	-	-	-	-
New Construction Rebate Expense	-	-	16,000,000	16,000,000	16,000,000	16,000,000
ME&O Expense	-	-	10,505,360	9,363,840	11,304,320	10,354,300
	2,577,616	2,577,616	156,040,840	219,638,612	222,195,518	159,671,175
						760,123,761
						TRUE

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 8(i)**

EVCN CANCELLED PROJECT COST PER PORT	
EVCN Cancelled Projects (as of Sep 2021) ¹	\$386,000
EVCN Total Ports	4,827
EVCN CANCELLED PROJECT COST PER PORT	\$79.97

EVC 2 PROGRAM CANCELLED PROJECT ESTIMATE	
EVCN Cancelled Project Cost per Port	\$79.97
EVC 2 Program Ports ²	12,000
EVC 2 PROGRAM CANCELLED PROJECT ESTIMATE	\$959,602

Notes:

¹ Total has been rounded to the nearest thousand

² Excludes 4,000 New Construction ports

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 8(v)**

EV SITE PRIORITIZATION TOOL	
Initial tool development	\$200,000
Tool enhancements, license fees, user accounts	\$1,250,000
TOTAL EV SITE PRIORITIZATION TOOL	\$1,450,000

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_005,
Question 4**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates_005-Q004		
PG&E File Name:	ElectricVehicleCharge2_DR_CalAdvocates_005-Q004		
Request Date:	January 24, 2022	Requester DR No.:	005
Date Sent:	February 7 th 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	David Matthews

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 004

Referring to Table 7-3 on page 7-4 of PG&E's Testimony, the total expense cost listed for the EV Site Prioritization Tool is \$1,730,000. Referring to PG&E's response to Cal Advocates' Data Request 001, Question 08, Attachment 1, worksheet "Q8.v", the total estimate for the EV Site Prioritization Tool is \$1,450,000 (\$200,000 for initial tool development and \$1,250,000 for tool enhancements, license fees, and user accounts).

- a. Please explain the discrepancy between these two totals.
- b. If the different amounts shown are in error, please provide corrected tables and worksheets for all references to the EV Site Prioritization Tool in PG&E's Testimony, workpapers, and data request responses.
- c. Please describe the tool enhancements, license fees, and user accounts costs that PG&E anticipates as part of its EV Site Prioritization Tool, and provide cost estimates for each within the proposed \$1,250,000 budget.
- d. Please explain the specific "tool enhancements" PG&E plans to make to the EV Site Prioritization Tool and describe any benefits the new features/improvements would provide in PG&E's internal site evaluation process.

ANSWER 004

- a. In response to CalAdvocates_001-Q08.v, PG&E provided support for its EVC 2 starting forecast of \$1.50M (see "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01," 'Q8.v' tab). Beginning with Line 6 in PG&E's EVC 2 workpapers, "ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx," filed on November 18, 2021, 'Ch. 7 - Expense' tab, PG&E applies escalation factors in Line 28 to increase this amount to \$1.57M (see Line 49). PG&E then applies 10% per year of contingency (Lines 71 and 92) to arrive at a \$1.73M EVC 2 EV Site Prioritization Tool forecast.
- b. Please see PG&E's answer to CalAdvocates_005-Q004.a.

- c. PG&E based the design and budget of the EV Site Prioritization Tool on estimates from a potential vendor. The tool elements and budget estimates, before escalation and contingency, are described below:
- Initial tool development – Estimated Budget: \$230,000 in Year 1. Initial tool development will include discussions and development of specific methodological and data schema details as well as specific scope of analyses.
 - Tool enhancements – Estimated budget: \$260,000 in Years 2 and 3. Tool enhancements could include additional data, additional analyses, refinement of prioritization criteria and processes. The tool enhancements will be based on insights and lessons learned as the program is set up and implemented and is intended to enable adjustments to the process as we gather learnings.
 - License fees – Estimated budget: \$700,000 in Years 2 through 6. This includes access to the data and analytical core of the tool and underlying data components. It also would include maintenance of the tool.
 - User Accounts – Estimated Budget: \$250,000 in Years 2 through 6. This would provide five user accounts to access the tool and data and analytical capabilities. It would also include onboarding and user training. support from the vendor
- d. Please see PG&E's answer to CalAdvocates_005-Q004.c.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_005,
Question 3**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates_005-Q003		
PG&E File Name:	ElectricVehicleCharge2_DR_CalAdvocates_005-Q003		
Request Date:	January 24, 2022	Requester DR No.:	005
Date Sent:	February 7 th 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	David Matthews

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 003

On page 4-4 of PG&E's Testimony, it states that PG&E is requesting \$1.15 million to upgrade the EV Savings Calculator Tool. Cal Advocates-A2110010-PG&E-04 6

- a. Please explain the initial development process for the EV Savings Calculator Tool, including when it was proposed, how long it took to develop, when it was released to the public, and proposed costs vs actual development costs.
- b. Please explain the specific upgrades PG&E plans to make to the EV Savings Calculator Tool and describe any benefits the new features/improvements would provide to customers.

ANSWER 003

- a. The EV Savings Calculator (formerly known as the EV Cost of Ownership Tool) was initially proposed as part of the Electric Vehicle Infrastructure and Education Program Application (A.15-02-009.) In May 2017, pursuant to D. 16-12-065, PG&E filed AL 5064-E and 5064-E-A to provide additional details on its Education and Outreach Proposal, which included an overview of the EV Cost of Ownership toolkit, its proposed scope, and estimated budget. PG&E received approval of AL 5064 and 5064-E-A in June 2017.

PG&E released a Request for Solutions (RFS) in Q1 2018. The contract was awarded and the design and build phase began in Q3 2018. Soft launch of what was publicly called the EV Savings Calculator took place at the end of 2018 and full functionality of the initial proposed scope launched in Q1 2019.

The budget outlined in AL 5064-E for the EV Cost of Ownership toolkit totaled \$1.24M. Total spend through September 2021 is \$1.17M¹, which includes development costs to

¹ See PG&E's response to CalAdvocates_002-Q13 and "ElectricVehicleCharge2_DR_CalAdvocates_002-Q13Atch01CON.xlsx".

satisfy the original scope of the work, enhancements, operations & maintenance costs, and marketing spend.

- b. Since its launch in late 2018, the EV Savings Calculator has evolved to reflect changes in the market as well as the evolving needs of current and potential EV drives. For example, the original scope of the tool provided information on total cost of ownership and rates, allowing for customization depending on specific EV models and driving behavior. Over time, the tool evolved to capture additional EV models and more details on charging and driving habits, and it will soon incorporate enhanced functionality that will allow customers to receive a rate recommendation based on their actual historic usage instead of relying on modeling.

Future proposed enhancements will take a similar approach of incorporating user feedback to design additional features and improvements to functionality to better serve customers, in particular those to whom EVC 2 is targeted, such as multi-family housing residents and residents in AB 841 Prioritized Communities. The first wave of EV adopters were primarily higher income, single-family home residents. As the demographics of EV adopters expand beyond this initial group, PG&E will bring in information and features that resonate more with lower income customers and multi-family home residents.. This could include, among other things, translating the tool to different languages to represent the needs of a more diverse audience, adding testimonials from MFH residents, and tailoring highlighted incentives to low-income customers, and using the tool to help customers understand their options at PG&E's proposed EVC 2 post-energization outreach events. Other future enhancements may include updating the rate comparison engine as new rates are proposed and launched and adding functionality that captures changes to the EV purchasing experience like working directly with dealers or demonstrating live availability of EVs nearby.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 8**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q08		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q08		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 08

a) Please state the basis for, and provide documents demonstrating, how PG&E calculated the costs for the following cost categories of its proposed EVC 2 program:

- i. Costs for cancelled projects. Specifically, state the basis for, and provide documents demonstrating how PG&E estimated the costs for the following cost categories of its proposed EVC 2 program. Specifically, state the basis for, and provide documents demonstrating, how PG&E estimated the costs for its Grid Visibility Tool. for how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 1.
- ii. Costs for rebates. Specifically state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Exp Proj Costs", lines 7-13.
- iii. Cost for its Equity Initiative Program. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 6-4 – Equity Initiatives", lines 1-5.
- iv. Cost for its EV Savings Calculator. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 5. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.
- v. Cost for its EV Site Prioritization Tool. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 6. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.
- vi. Costs for IT. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – IT", lines 1-5. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.

- vii. Costs for marketing, education, and outreach (ME&O). Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 6-3 – MEO", lines 1-6.
- viii. Costs for preliminary design and ROM process. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 12. Additionally, define "ROM".
- ix. Costs for a program evaluator. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 13.
- x. Costs for a program survey. Specifically, state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 14.
- xi. Cost for site host data application programming interface (API). state the basis for, and provide documents demonstrating how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 15. If PG&E used its PET to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.

ANSWER 08

- i. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.i' tab, in support of its cancelled project forecast. Using EVCN cancelled project data as of September 2021, PG&E estimated roughly \$80 per port in cancelled project costs. Applying this figure to EVC 2's 12,000 ports (excluding 4,000 New Construction ports), PG&E anticipates roughly \$1.0M in EVC 2 cancelled project costs.

For the Grid Visibility Tool, PG&E developed its forecast by consulting with its internal operations team and relying upon its experience developing the EV Savings Calculator for existing EV programs. This funding will allow for future development of the Tool.

- ii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.ii' tab, in support of its Customer-owned Rebate forecast. As noted in the tab, the forecast is derived from data already provided in PG&E's EVC 2 workpapers ("ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx").
- iii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.iii' tab, in support of its Equity Initiatives cost proposal. The team developed costs for the Equity Initiatives by consulting with internal teams with similar experience conducting customer outreach and engagement.

- iv. For the EV Savings Calculator, PG&E developed its EVC 2 forecast by consulting with its internal operations team and using benchmark data from recent engagements with the vendor who supports PG&E's EV Savings Calculator. This funding will be used to enhance PG&E's current EV Savings Calculator, potentially by allowing customers to research if they're in an AB841 prioritized community so they are aware of the incentives they are eligible for, and improve the customer experience given EVC 2's expanded scope.
- v. For the EV Site Prioritization Tool, PG&E consulted with its internal operations team and third-party vendor to develop the forecast. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.v' tab, which lists the Tool's cost components.
- vi. For IT, PG&E developed its EVC 2 forecast by consulting with its internal operations and IT teams and relying upon actual EVCN and other CET program costs. Details can be found in PG&E's EVC 2 workpapers ("ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx"), 'Ch. 7 – IT' tab.
- vii. The basis for and explanations of PG&E's marketing, education and outreach (ME&O) included on lines 1-6 on PG&E's workpaper Ch. 6-3 are developed largely using EVCN Phase 1 experience as guidance with a detailed breakdown provided below. The costs are based on how many leads we expect to generate for the program.

Overall:

PG&E aims to generate approximately 8,000 leads submitted over the course of the program. From those leads, we anticipate 50% will turn into completed applications (approximately 4,000) and 25% of the completed applications will result in completed sites (approximately 1,000.)

PG&E estimates that ME&O will achieve ~80% of the overall 8,000 leads goal with the remaining ~20% coming from the CBO outreach that is discussed in the equity chapter of testimony.

Details on the assumptions for each of the 6 line-items are as follows:

Line 1: Direct-to-Customer (Email, Direct Mail, Teleservices)

PG&E expects to attain 2,155 customer leads from Direct-to-Customer outreach channels with 650 in Year 1, 650 in Year 2, 360 in Year 3, 300 in Year 4 and 195 in Year 5. Details for these channels are as follows:

Teleservices: 1:1 phone call with trained representatives to have a deeper conversation about the program details and drive program interest and encourage application submission. Identified leads that are not ready to submit-an-application would be nurtured over time with our internal relationship managers.

Email: Multi-touch email campaigns are planned to engage and inform the target audience on the program, identify key decision makers, and drive customer acquisition online.

Direct Mail: A direct mail campaign, in which PG&E plans to send mailers to site hosts with key messaging that specifically targets different types of customers.; Direct mail will provide an entry point into the conversation with customers and continue to educate them on the program over time.

Line 2: Digital Media

PG&E expects to attain 740 customer leads from digital media with 410 in Year 1, 205 in Year 2, and 125 in Year 3. Details for this channel are as follows:

Digital media including online search, online display and social media will educate the target audience-online and drive them to learn more information about the program via PG&E's website as well as. provide an opportunity to complete a customer interest form and become a lead.

Social media will include targeted paid posts to key customer segments promoting program participation. Similar-to Teleservices, the Digital Media budget is planned to start with a higher volume of outreach-and decline in future years as program awareness increases and the program nears its goals. The budget assumes there will not be a need to be in market in Year 4 and 5. This enables resources to be allocated to other channels that are better able to nurture engaged customers to the application and contract stages.

Line 3: Relationship Management Support (BES/Public Affairs)

PG&E expects to attain 4,150 customer leads from relationship management support with 660 in Year 1, 1,000 in Year 2, 1,000 in Year 3, 830 in Year 4, and 660 in Year 5. details for this channel are as follows:

Customer Relationship Managers strong relationships with many potential site hosts will be utilized to provide educational materials and program collateral to help drive program enrollment. They will work directly with customers to provide information about the program, answer questions, provide application assistance, and provide guidance on how this program can tie into more comprehensive electrification efforts.

Line 4: Non-AB 841 PC Utilization Site Events and Stakeholder Outreach

The basis and explanation for Non-AB 841 PC Utilization Site Events and Stakeholder Outreach are as follows:

PG&E will select sites in communities with lower utilization rates and work with the site hosts to execute events to educate the local community on the benefits of EV adoption as well as promote the charging infrastructure to increase utilization.

PG&E estimates \$100,000 for creation of event materials in year 1 and 2 events per year at \$50,000 per event (using event costs for the CARE program as a benchmark.) PG&E intends on using targeted channels such as

paid social and potentially local print near event locations to help increase attendance cost efficiently.

PG&E intends to develop co-marketing opportunities that may consist of creating or hosting joint webinars along with co-branding of sales materials. Co-marketing helps fulfill a mutual benefit of extending target audience reach and amplifying efforts to acquire EV charger installations.

Line 5: PG&E Marketing Labor Support

PG&E estimates needing marketing labor support equivalent to 1.50 Full Time Employees in Years 1 through Year 4, 1.25 Full Time Employees in Year 5 and .25 Full Time Employees in Years 6 and 7. The basis and explanation are as follows: The labor costs include support from internal PG&E marketing labor related to strategy, planning, execution, monitoring, project management, regulatory support, and reporting.

Line 6: Agency Creative and Execution and Support Materials

The basis and explanation for agency creative execution and support materials is as follows:

These costs include creative development utilized for the work noted above for Lines 1-5. In addition, the scope includes developing digital materials for Demand Response/VGI program communications not covered in EVCN Phase 1's scope. It also includes costs for production of printed materials to support acquisition and utilization efforts including brochures, digital toolkit, 2-3 video testimonials and any additional in-market needs that arise during the life of the program.

- viii. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.viii' tab, in support of its Preliminary Design and ROM Process forecast. Using EVCN preliminary engineering data as of September 2021 to cover design and ROM costs, PG&E estimated roughly \$311 per port in design and ROM costs. Applying this figure to EVC 2's 12,000 ports (excluding 4,000 New Construction ports), PG&E estimated roughly \$3.7M in preliminary design and ROM process costs. For program simplicity, this figure has been rounded down to \$3.5M in the EVC 2 application.
- ix. PG&E is aware the Commission authorized SDG&E to spend three percent of its \$43.5M PYD Extension budget on third-party evaluator efforts¹ and SCE one percent of its CR2 budget to fund third-party evaluation efforts.² To be conservative, and the scale of EVC 2 more aligned with SCE's CRD 2 program, PG&E has applied one percent to its EVC 2 budget. PG&E has provided attachment "ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx", 'Q8.ix' tab, in support of its \$2.8M Program Evaluator forecast.

¹ [378429298.PDF \(ca.gov\)](#), p. 89 of the PDF

² [345702701.PDF \(ca.gov\)](#), p. 130 of the PDF

- x. For the Program Survey, PG&E developed its forecast by consulting with its internal operations team and by benchmarking against costs of other surveys PG&E has conducted for existing EV programs. PG&E has provided attachment “ElectricVehicleCharge2_DR_Cal Advocates_001-Q08Atch01.xlsx”, ‘Q8.x’ tab, which lists the various cost components of the Program Survey.
- xi. For the Site Host Data API, PG&E developed its EVC 2 forecast by consulting with its internal operations team and relying upon its experience creating API connectivity for the EVCN program.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 7**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q07		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q07		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 07

- a) PG&E proposes a Grid Visibility Tool to help customers identify where there is sufficient electrical capacity for EV projects.
- i. Please state the basis for, and provide documents demonstrating, how PG&E calculated the costs for its Grid Visibility Tool. Specifically, show how PG&E calculated the costs shown in PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 - Expense", line 7. Additionally, if PG&E used its IT Project Estimating Tool (PET) to develop the cost estimate, please provide the PET output file in Excel format, as well as the PET cover sheet.
 - ii. Please explain what functionalities the Grid Visibility Tool would have that are not already provided by PG&E's Integration Capacity Analysis (ICA) maps.

ANSWER 07

i. PG&E consulted with its internal IT and operations team to develop the Grid Visibility Tool budget forecast based on existing resources and similar tools. Given the similarities to and planned integration with the EV Savings Calculator, PG&E benchmarked the budget with the spend for the EV Savings Calculator development in the EV Charge Network program. It did not specifically use its IT Project Estimating Tool to develop the cost forecast and instead relied on internal subject matter experts.

ii. PG&E consistently gets questions from customers about the available capacity of the local grid at a potential project site, particularly for EV charging infrastructure projects. The Grid Visibility Tool is intended to provide additional functionality compared to the existing ICA maps as well as make the information already provided by the ICA maps more user-friendly and understandable.

Currently, the ICA maps allow customers to type in a single address and see the nearby feeder and electric line capacity visually displayed. Customers can then click on a particular line and it will provide capacity information for that line, such as "load hosting

capacity”, but the map does not easily provide the context for customers who are not well versed in the technical details to understand the data they see and how it impacts their EV infrastructure project. For additional information about the map and the data, customers must consult the 28-page user guide. Additionally, there is a separate Distribution Investment Deferral Framework (DIDF) map, which consists of the Grid Needs Assessment (GNA) and Distribution Deferral Opportunity Report (DDOR), and shows assumptions and results of the distribution planning process that yield grid needs related to distribution grid services. The information displayed in the DIDF map is directionally informative, but the customer must look at their project site in the DIDF map and the ICA map separately and then do their own comparison. The Grid Visibility Tool would provide additional support to a customer to input all necessary information about their project, address(es), anticipated load, etc., and this could be done through a simple pop-up box with a series of questions for example. Once the customer input information about their project location or multiple potential locations, the Tool would provide the available load hosting capacity at the line level with additional directional information on whether that is sufficient to support the customer’s proposed project specifications. The Tool would allow the customer to easily view and compare the available load across multiple addresses. It is also intended to integrate the data from the DIDF map so that a customer can easily see the DIDF outputs, such as planned grid investments, with the information about local capacity and see how it may impact their selected project site(s).

PG&E also intends to integrate the Grid Visibility Tool with PG&E’s EV Savings Calculator and Fleet Fuel Savings Calculator which many customers currently use to better understand their potential charging needs if they were to electrify their vehicles. Once customers input the information about their transportation operations into the calculators, they would be able to import or manually input the data about their potential charging needs (e.g., amount of kW) into the Grid Visibility Tool and understand the local grid capacity. While the grid capacity information is illustrative, the improved user experience and enhanced functionality will provide customers with useful information about specific potential project sites and guide their decisions about infrastructure installation.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_006,
Question 2**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates_006-Q002		
PG&E File Name:	ElectricVehicleCharge2_DR_CalAdvocates_006-Q002		
Request Date:	January 27, 2022	Requester DR No.:	006
Date Sent:	February 11, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Arthur Tseng/ David Gibbs

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 002

The attachment to this response is confidential, as reflected in the Confidentiality Declaration, dated February 10th 2022.

Referring to PG&E's response to Cal Advocates Data Request No: Cal Advocates-PGE-A2110010-001, Question 08(a)i., p. 1, PG&E states that it developed the Grid Visibility Tool budget forecast based on existing resources and similar tools, and "[g]iven the similarities to and planned integration with the EV Savings Calculator, PG&E benchmarked the budget with the spend for the EV Savings Calculator development in the EV Charge Network program."

- a. Please describe the similarities between the Grid Visibility Tool and the EV Savings Calculator and describe the specific characteristics of each tool and the development that allows PG&E to use the spend for the EV Savings Calculator development in the EV Charge Network program as a benchmark.
- b. Please provide details, in Excel format, comparing the spend for the EV Savings Calculator development in the EV Charge Network program to the proposed Grid Visibility Tool budget, including all formulae, calculations, estimates, and descriptions of assumptions made to determine the proposed Grid Visibility Tool budget.
- c. Please describe whether the "planned integration with the EV Savings Calculator" is accounted for within the proposed EVC 2 budgets (i.e. within the budget for the Grid Visibility Tool, the EV Savings Calculator, both, or neither).
- d. Given the similarities to, and planned integration with, the EV Savings Calculator and PG&E's use of the spend for the EV Savings Calculator development in the EV Charge Network program as a benchmark for the proposed Grid Visibility Tool budget, please describe whether any part of the EV Savings Calculator development (i.e. programming code for the tools, development processes, etc.) will be used in the development of the proposed Grid Visibility Tool.
- e. Please describe any lessons learned from development of the EV Savings Calculator that PG&E intends to leverage in the development of the proposed Grid

Visibility Tool, and how PG&E intends to use those lessons to improve the development process of the proposed Tool.

ANSWER 002

- a. The main similarities between the Grid Visibility Tool (GVT) and the EV Savings Calculator (EVSC) will be in the tool design and user experience. The GVT will take the complex, technical information currently displayed on PG&E's Integrated Capacity Analysis (ICA) Maps and create a streamlined, simple input process for customers to understand the available capacity relative to anticipated EV load at a site. Currently, the ICA Maps require accessing a separate user manual to understand how to interpret the data in the map and the outputs are in a technical format that is not truly accessible to the general public. The GVT would enable any PG&E customer to understand the available grid capacity at a potential site and how it impacts their infrastructure plans. This is similar to how the EV Savings Calculator creates a simple process for customers to input information about their transportation needs and understand what that means for electrifying. The GVT is also intended to allow customers to compare different sites to each other and utilize the information about charging needs generated from the EV Savings Calculator in the comparison.
- b. Please see ElectricVehicleCharge2_DR_CalAdvocates_006-Q002Atch01.xlsx.
- c. The planned integration with the EV Savings Calculator is included in the budget for the Grid Visibility Tool in the tool development category.
- d. The EVSC serves as a benchmark because it is an example of a tool that relies on various inputs to produce highly customized information presented in an easy-to-understand format. The code and most of the information inputs will be completely separate from what will be developed for the Grid Visibility Tool.
- e. The EV Savings Calculator (EVSC) has been a great success, reaching over 1M unique sessions in January 2022. This level of engagement is attributed to the tool's customer centric approach which allows for a customized experience and can be modified to adapt to a changing market and customer needs. The development of the tool started with extensive user testing to better understand how customers intuitively interacted with the prototype and what changes were necessary to ensure the customer experience was optimized. The tool continues to collect and incorporate user feedback into its design. This approach is also recommended for the Grid Visibility Tool.

Other recommendations include incorporating visual aids in place of heavy text when possible, adding filters and input fields that yield real time results to inform customer decision making, adapting the tool to be mobile device friendly, and pursuing multi-lingual versions of the tool to facilitate its use across a diverse set of customers.

**Excerpt from Pacific Gas and Electric's EV Charge Network
Q2/2021 Report**

2. Customer Interest, Outreach, and Education

2.1 EV Charge Network Applications

Since launching the EV Charge Network program website and online application in Q3 2017, PG&E received a total of 816 applications through Q2 2019 when the program stopped accepting new applications. Figure 2.1 shows the total number of applications received and the number of applications in each stage at the end of Q2 2021.⁵

FIGURE 2.1 SUMMARY OF APPLICATION STATUS THROUGH Q2 2021

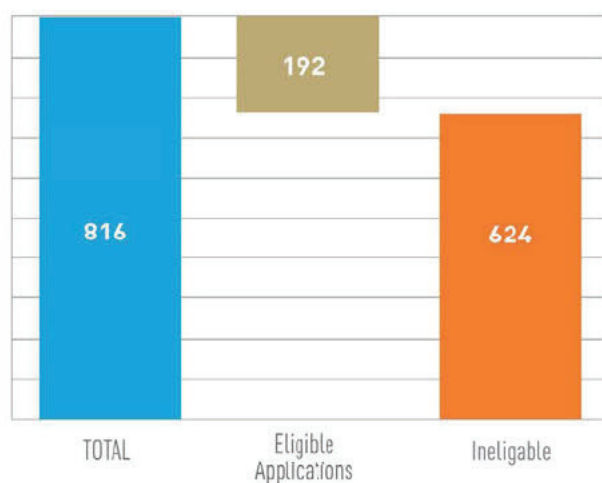


Table 2.2 shows the breakdown of property type, disadvantaged community status, and program participation across all applications received through Q2 2021.

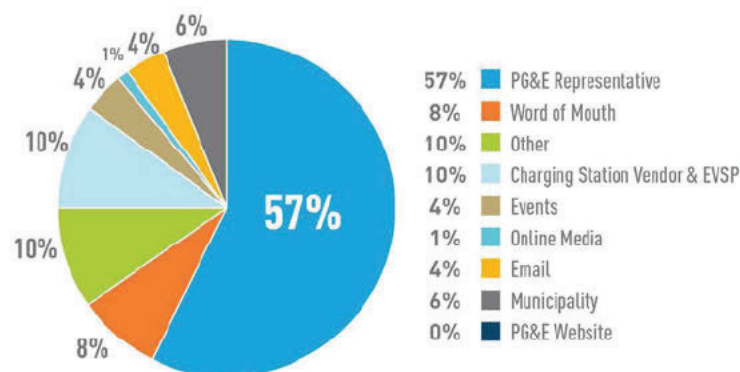
TABLE 2.2 APPLICANT PROFILE THROUGH Q2 2021

	NUMBER OF APPLICATIONS	PERCENT OF APPLICATIONS
PROGRAM PARTICIPATION		
EV Charge Owner	629	77%
EV Charge Sponsor	187	23%
PROPERTY TYPE		
MUD	220	27%
Workplace	596	73%
DISADVANTAGED COMMUNITY STATUS		
Disadvantaged Community (DAC)	209	26%
Other PG&E Territory	607	74%

CROSS-SECTION (Applications)	DAC (% of Grand Total)	NOT IN DAC (% of Grand Total)
MUD	46 (6%)	174 (21%)
WORKPLACE	163 (20%)	433 (53%)
Subtotal	209	607

Applicants reported hearing about the EVCN program from various sources. In Q2 2019, PG&E's Sales team wrapped up their outreach. Over the course of the program's outreach, the PG&E Sales team represented the largest source of incoming lead generation, bringing in over 55% of program applications through Q2 2019. Figure 2.3 depicts how applicants reported hearing about the EVCN program on the online application.

FIGURE 2.3 EVCN PROGRAM APPLICANT SOURCE OF PROGRAM KNOWLEDGE THROUGH Q2 2019



5. While the program has stopped accepting new applications, the number of eligible projects may change if projects are canceled.

**Excerpt from Southern California Edison's Charge Ready
Phase 1 Program Pilot Report**

2.10 Charge Ready Education and Outreach

2.10.1 Overview

Charge Ready education and outreach efforts were designed to promote the Pilot to SCE customers. SCE also tested marketing channels in preparation for a subsequent phase of Charge Ready, including email, website, social media, collateral, and account manager interaction. SCE developed content to communicate to potential customer participants about the Pilot, and highlighted key areas such as eligible rates, bill impact analyses, metering options, EV infrastructure, access to subject matter expert resources, and EVSE information. SCE also developed marketing materials to provide relevant program information and help customers through the application process. The Charge Ready program landing page⁵¹ is the main resource for customers to learn about the Pilot and submit their applications. A full list of the Charge Ready marketing materials, along with their descriptions, can be found in **Appendix E**.

2.10.2 Outreach Events

SCE conducted 38 outreach events during the Pilot to support program enrollment. SCE employees who attended the events provided an estimated 6,281 customer interactions. A full list of the outreach events can be found in **Appendix D**.

2.10.3 Multi-Unit Dwelling Outreach

In Q3 2016, SCE focused some of its Charge Ready marketing efforts toward the MUD market segment. To increase MUD customer enrollment in Charge Ready, SCE developed a customer outreach and engagement plan, including:

- **Direct Engagement:** SCE Account Managers individually reached out to a list of MUD customers that had been screened as potential Charge Ready participants. During the Pilot, there were 147 Account Manager interactions with MUD customers.
- **Targeted Marketing Collateral:** SCE developed a MUD Customer Fact Sheet articulating the value proposition for MUDs to deploy EV charging, in general, and through Charge Ready, in particular. The collateral was distributed via email to 482 customers with an invitation to attend a MUD workshop.
- **MUD Customer Outreach Events:** SCE conducted an in-person meeting at SCE's Energy Education Center on August 30, 2016. SCE presented a program overview and organized a meet-and-greet with the program's charging station vendors. Participating MUD customers also learned about complementary financing opportunities from representatives from CARB and the California State Treasurer's office (CPCFA/CalCAP).

SCE also started weekly MUD Virtual Workshops in Q4 2016 to educate MUDs about the Charge Ready program and other available complementary EV programs. During the meetings,

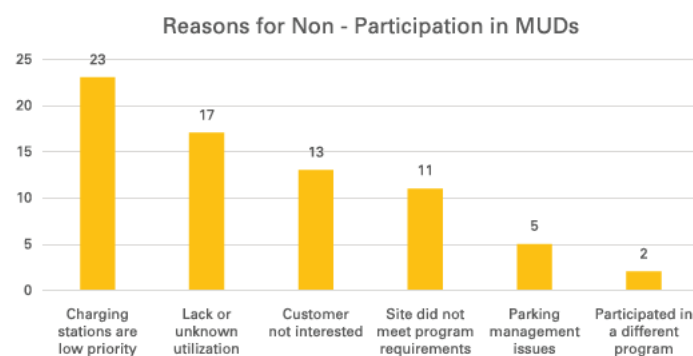
SCE shared the MUD fact sheet and other targeted marketing materials developed during Q3 2016.

SCE learned about the MUD customer segment through its marketing and outreach approach. Low customer attendance at the first two MUD Virtual Workshops changed the outreach strategy from a mass message approach to a targeted, direct engagement approach. SCE intended to reach large numbers of MUD customers through the virtual workshops, but later found direct engagement to be more effective in educating customers about the program.

SCE discontinued the weekly MUD Virtual Workshops and, instead, focused efforts on direct engagement with customers.

SCE's direct interactions (phone, email, and in-person meetings) with MUD customers revealed customers interested in charging stations and also uncovered reasons why some MUD customers were not interested in the program. For the customers interested in the program, SCE focused resources to support these customers during the enrollment process. For customers not interested in the program, SCE gathered customer feedback to inform a future Phase 2 MUD outreach strategy. The following chart summarizes the feedback from 71 MUD customers who indicated their reasons for not participating in the program.

Figure 2.22 Reasons for MUDs Declining to Participate in Charge Ready



2.10.4 Overall Successes

Charge Ready Pilot marketing created overwhelming customer and vendor interest, gaining favorable feedback from vendors and customers as described in Section 2.9 Customer Satisfaction. In addition, the effectiveness of the multi-media marketing was proven two weeks after launch; the program had already received a total of 183 applications. SCE communicated the details of a complex, months-long project in a simple, easy-to-follow manner. Due to significant interest in the program, SCE stopped accepting new applications seven months after launch. 334 customers had submitted applications to have 2,043 EV charging stations installed on their property when SCE

⁵¹ <https://on.sce.com/chargeready>

**Excerpt from Southern California Edison's Charge Ready 2
Program Application (A.18-06-015) Opening Testimony**

1 organizations, and sources exist to educate the public on key EV concerns, such as cost to own,
2 performance, or where and how to charge. Providing education through a single source such as a self-
3 service tool or through hands-on experiences through a trusted advisor such as SCE will be important to
4 advancing consumers through their EV journey.

5 c) Objective

6 The objective of the Customer Education Program is to build on the proposed EV
7 Awareness Campaign to provide further education on EVs by combining new online self-service tools,
8 enhanced education and training materials for stakeholders, and hands-on ride-and-drive events and
9 experiential events. This will help to increase EV adoption.

10 **3. TE Advisory Services Expansion**

11 a) Description

12 SCE proposes to expand the Phase 1 Pilot TE Advisory Services to include new
13 services for more business customers. These services will primarily focus on technical education and
14 support commercial, governmental and fleet-operating customers from initial awareness to training,
15 hands-on experiences, and TE-related assessments performed by SCE or its vendors. These efforts will
16 target business customers including small, medium and large commercial fleet operators, school
17 districts, transit agencies, cities and counties (including their various departments with fleet vehicles
18 such as public works, emergency response, permitting and inspection agencies, and parking
19 enforcement), workplaces and public charging locations with employee/visitor parking, and multi-unit
20 dwelling owners, managers, and homeowners' association representatives.

21 (1) Educational Events at SCE's Energy Education Centers

22 SCE's Energy Education Centers in Irwindale and Tulare educate
23 customers and the community on key energy-related technologies and programs. They serve as
24 technical and scientific centers of expertise where customers and the local community go to connect
25 with and learn from experts on a variety of energy-related topics. SCE plans to bring electric vehicles to
26 customers via Energy Education Center demonstrations, driver training classes, and ride-and-drive
27 events to showcase the benefits of EVs, provide access to vehicle manufacturers and technical experts,

1 and create a venue for customer cross-pollination and idea-sharing. For example, customers interested
2 in Charge Ready 2 may be exposed to quarterly medium- and heavy-duty ride-and-drive events,
3 highlighting a potentially unfamiliar vehicles class such as school buses or delivery vehicles. Industry
4 experts will provide classroom training (including any tie-ins with applicable utility incentive programs)
5 and OEMs may demonstrate their vehicles and answer questions. Classroom-based driver training and
6 safety education training will provide fleet operators with greater confidence in their drivers' ability to
7 maximize range of EVs and ensure employee and public safety.

8 (2) Fleet Assessments and Site Feasibility Assessments

9 SCE has successfully provided a limited number of high-level fleet
10 analyses and site feasibility assessments to help customers prepare for potential deployment of charging
11 stations. These efforts support customer consideration of TE technologies. These services, provided by
12 trained SCE personnel, have allowed SCE to refine its methodology and evaluate customer interest in
13 EV adoption. SCE plans to continue offering these services to more customers over the four-year
14 program period.

15 SCE has also identified that its businesses customers with large fleets have
16 sophisticated fleet operations requiring granular duty-cycle data and analysis to evaluate fleet conversion
17 beyond the high-level fleet analyses SCE has been piloting. For qualified customers,¹³³ SCE intends to
18 develop an enhanced service to help gather relevant data and conduct investment-grade fleet analyses to
19 support their fleet management needs and decision-making process through the development of a
20 comprehensive business case for TE investment.

21 (3) Grant Writing Services/Support

22 SCE has learned that many customers with fleet operations do not have
23 available budget to participate in or create EV demonstrations or deployments. Grants are critical to
24 initiating adoption in new segments lacking high EV penetration. While significant funding is available
25 for TE conversion and demonstrations (e.g., Carl Moyer Program or Hybrid and Zero-Emission Truck

¹³³ Based on the number of fleet vehicles for which commercially available EV alternatives exist.

1 and Bus Voucher Incentive Project (“HVIP”)), many customers do not have the resources available to
2 apply for these grants. For example, school districts or distribution centers may not take advantage of
3 grant funding opportunities to acquire electric buses or electric refrigerated truck units (“RTUs”) that
4 could be combined with available utility infrastructure programs to install the necessary charging
5 equipment. SCE will offer grant writing services and support to customers and identify and assist in
6 applying for appropriate grants. SCE will track the participating customers’ applications and whether
7 they received grants.

8 b) Gaps & Customer Needs

9 Business customers have expressed to SCE the need for more technical assistance
10 from a neutral voice as they consider electric vehicles for their operations. Business customers without
11 sufficient support are frequently faced with inertia that prevents them from evaluating and planning
12 adoption of TE technologies. Alternatively, customers without the proper expertise could make costly
13 decisions that will hinder future adoption efforts.

14 SCE has found that business customers, like their residential counterparts, are
15 often unfamiliar with the range of TE options available to replace their fleet of fossil-fueled vehicles.
16 They are unprepared to assess the feasibility of adding EVs to their fleets and developing a reliable
17 business case to support a conversion. These customers, including local governments, may be
18 unfamiliar with writing grants to access the many available State and federal TE incentives.

19 c) Objective

20 The objective of the education events and site and feasibility assessments is to
21 expose business customers to electric vehicle options for commercial and fleet vehicles. These
22 education and demonstration events will provide hands-on exposure and access to a variety of electric
23 vehicle models applicable to fleet operations. Additionally, fleet and site feasibility assessments will
24 allow business customers to understand how adoption of EVs will specifically impact and work with
25 their operations.

26 The objective of the grant writing service is to assist customers in applying for
27 grants that fund acquisition of EVs for fleet conversion or for demonstration and evaluation purposes.

SCE intends to provide technical writing assistance and to leverage industry expertise to help customers prepare their applications.

4. ME&O Implementation

While SCE is proposing three discrete, related efforts to develop awareness about TE that have specific descriptions, address different customer needs, and have different objectives, there are certain implementation pieces that will be the same across all ME&O activities. These include collaboration and partnerships, creative agencies and vendors, data collection and reporting, TE Advisory Board, duration, cost, and benefits.

a) Collaboration and Partnerships

SCE proposes to coordinate its market education efforts closely with industry and government stakeholders at the local, regional, State, and national levels. From local vehicle dealerships to OEMs, from cities and communities to regional air districts, the CEC or CARB, SCE has demonstrated its experience and willingness to work with stakeholders to educate residential and business customers about EVs. Through the proposed new efforts, SCE intends to continue and expand these collaborations.

b) Creative Agencies and Vendors

SCE plans to implement the proposed efforts with a combination of in-house resources, third-party creative agencies and other vendors. When SCE procures these services from third parties, SCE utilizes a consistent set of professional service vendors which support all SCE ME&O programs. These vendors are awarded contracts based on SCE Procurement policies and procedures including a competitive RFP process, subject to SCE's WMDVBE requirements.

c) Data Collection and Reporting

SCE proposes to provide annual status reports to the Commission's Energy Division and other interested stakeholders. The proposed reports will evaluate data across all program activities. SCE will use and report on a variety of metrics to evaluate success and effectiveness of each effort, in particular for awareness, intent, and engagement. SCE intends to monitor these metrics and make changes in approach or to shift the mix of one channel over another to ensure program objectives

1 are reached. For instance, to determine awareness and intent, SCE will conduct surveys to develop
2 baselines and continuously evaluate its efforts. SCE will also measure media impressions, reach,
3 frequency, and website traffic. For engagement, SCE will measure click-through and open rates, video
4 views, and likes/shares in social media.

5 Evaluation metrics will also include class and event attendance metrics and pre-
6 and post-event survey data to measure increased interest in procurement of electric vehicles or
7 participation in utility incentive programs.

8 d) Advisory Board

9 SCE intends to work closely with the TE Advisory Board and its members as SCE
10 develops and implements its ME&O activities. SCE will also provide updates to the Board about its
11 progress and discuss any adjustments needed.

12 e) Duration

13 SCE proposes to conduct its ME&O efforts for a period of four years following
14 approval by the Commission.

15 f) Costs

16 The table below summarizes the costs for the proposed marketing, education and
17 outreach efforts.
18

Table III-4
ME&O Costs
(Millions, 2018 \$, not loaded)

ME&O	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>GRAND</u> <u>TOTAL</u>
Broad EV Awareness	\$0.0	\$7.3	\$6.7	\$7.6	\$7.2	\$28.7
Customer Education	\$0.0	\$2.2	\$1.8	\$2.2	\$1.8	\$8.0
TE Advisory Services	\$0.0	\$1.0	\$0.9	\$1.5	\$1.4	\$4.8
TOTAL	\$0.0	\$10.5	\$9.4	\$11.3	\$10.4	\$41.5

g) Benefits

With any new technology, building awareness is critical to success. SCE believes that increasing awareness of EVs and their benefits will lead to greater consideration in the vehicle purchase cycle. More customers must become aware of EVs and their benefits to think of them when buying or leasing a new vehicle. SCE intends to build on its prior efforts to amplify EV awareness building as our customers' trusted energy advisor. SCE's message about the benefits of EVs is consistent with SCE's *Clean Power and Electrification Pathway* white paper. Customers are looking to SCE to help provide a modern grid, facilitate higher levels of renewables, improve air quality, and help make EVs more affordable.¹³⁴

By addressing one of the most significant barriers to EV adoption, awareness, SCE's ME&O proposal will, first and foremost, seek to accelerate greater adoption of EVs. Additionally, the multiple components of the ME&O strategy will improve customer awareness of the value of charging off-peak and increase utilization of off-peak charging.

SCE's education and outreach campaigns have a history of success. For example, SCE created a multi-channel, multi-language public safety campaign, addressing what to do in

¹³⁴ SCE conducted a focus group on November 27, 2017, with Unisearch Partners to explore reactions to the communication ideas about SCE leading California toward a clean energy future.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_007,
Question 1**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates 007-Q001		
PG&E File Name:	ElectricVehicleCharge2 DR CalAdvocates 007-Q001		
Request Date:	January 28, 2022	Requester DR No.:	007
Date Sent:	February 15, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Arthur Tseng/ David Gibbs

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 001

In PG&E's Testimony, PG&E states that the total expense costs of the ME&O portion of the EVC 2 budget is \$9.61 million.¹ Please explain:

- a. How the category "Digital Media"² differs from the categories "Direct-to-Customer"³ and "Agency Creative and Execution and Support Materials"?⁴
- b. How the category "Relationship Management Support (BES/Public Affairs)"⁵ differs from the categories "Direct-to-Customer (E-mail, Direct Mail, Teleservices)"?⁶
- c. Whether the \$1.43 million⁷ allocated to "PG&E Marketing Labor Support" is for costs associated with PG&E personnel assigned to EVC 2?
 - i. Does the \$9.61 million⁸ budget represent overhead costs for consultants PG&E will hire, or additional staff PG&E plans to hire to administer the program?

ANSWER 001

- a. The Digital Media, Direct-to-customer outreach budget categories are inclusive of the cost to select, plan, and execute the outreach activity. The activities of digital media and direct to consumer outreach are outlined below.

-
- ¹ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 7, column 10, page 6-13.
 - ² PG&E Testimony, Table 6-3: ME&O Cost Summary, line 2, column 1, page 6-13.
 - ³ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 1, column 1, page 6-13.
 - ⁴ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 6, column 1, page 6-13.
 - ⁵ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 3, column 1, page 6-13.
 - ⁶ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 1, column 1, page 6-13.
 - ⁷ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 5, column 10, page 6-13.
 - ⁸ PG&E Testimony, Table 6-3: ME&O Cost Summary, line 7, column 10, page 6-13.

Digital Media

The digital media budget supports media selection, buying, monitoring, and reporting on digital media placements which may include, online paid search ads (Google/Gmail), and social media posts (Facebook, Twitter, LinkedIn). Digital media will be utilized for online targeting of audience segments and connecting customers with digital content and the customer interest form on PG&E's website. Social media will utilize targeted paid posts to key customer segments helping to promote program participation.

Direct-to-Customer (E-mail, Direct Mail, Teleservices)

The direct to customer budget category is inclusive of outreach efforts sent directly to a specific customer. PG&E will utilize direct mail, e-mail, and teleservices which are further describe below:

- Direct Mail: Mailers sent to site hosts with key messages to provide an entry point into the conversation with customers and continue to educate on the program over time.
- E-mail: Multi-touch e-mail campaign to engage the target audience on the program, identify key decision makers, and drive customer acquisition online.
- Teleservices: One-to-one phone call from trained representatives to have a deeper conversation with customers about the program details, drive program interest and encourage application submission.

Agency Creative, Execution and Support Materials

The agency creative, execution and support materials budgets funds the development and production of campaign items necessary to support the acquisition and utilization efforts which may include direct mail, email, internal relationship manager collateral, printed materials, videos, testimonials, digital media, and social media posts.

- b. The direct to customer channels and the relationship management support channel are different marketing channels and are complementary to each other to provide customer outreach through multiple touches to help educate and move a customer from interest to engagement in the program.

The direct-to-customer budget category is inclusive of outreach efforts the PG&E marketing department will make to communicate directly to customers using email, direct mail, and teleservices. This differs from relationship management and public affairs as the marketing department leads the outreach directly with the customer.

The relationship management support from BES Customer Relationship Managers and Public Affairs will leverage existing relationships with potential site hosts, EV companies, and non-profit and government organizations to help promote program participation. PG&E plans to engage with municipalities and local communities through PG&E's Public Affairs relationships to help enable these customers to plan, select, and mobilize adoption of EV infrastructure in a timely fashion. This differs from direct-to-customer as the Relationship management support outreach is led by BES customer relationship managers and public affairs with the marketing department supporting with marketing materials and messaging.

- c. The \$1.43 million allocated to PG&E Marketing Labor Support is for costs associated with PG&E personnel who are working on the EVC 2 program and conducting marketing activities including: strategy, planning, execution, monitoring, managing outreach plans and calendars.
- i. The \$9.61 million ME&O budget is inclusive of costs related to the marketing education and outreach activities for the program including the agencies PG&E will consult with for ME&O. These costs are not inclusive of staff or consultants for general program administration.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_002,
Question 9**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates_002-Q09		
PG&E File Name:	ElectricVehicleCharge2_DR_CalAdvocates_002-Q09		
Request Date:	January 3, 2022	Requester DR No.:	002
Date Sent:	January 18, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Alan Bach

QUESTION 09

Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Port Deployment", workplace and public destination L2 ports are combined in the same row.

- a. Please provide an updated Attachment 2 workpaper that distinguishes between workplace and public destination L2 ports in all relevant worksheets. For example, relevant worksheets include but are not limited to "Ch. 7 – Port Deployment", "Ch. 7 – Exp Proj Costs", etc.

ANSWER 09

- a. PG&E does not distinguish between workplace and public destination L2 port counts in its EVC 2 application or its workpapers. However, PG&E recommends using a 50%/50% split for the requested segment data.

As noted in PG&E's response to Cal Advocates_001-Q4, PG&E would like to reiterate that it reserves the flexibility to change the program size and/or segment allocations, based on market conditions at the time of program implementation.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_003,
Question 4**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates 003-Q04		
PG&E File Name:	ElectricVehicleCharge2 DR_CalAdvocates 003-Q04		
Request Date:	January 6, 2022	Requester DR No.:	003
Date Sent:	January 21, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Alan Bach

QUESTION 04

Referring to PG&E's EVC 2 Workpapers filed November 18, 2021, Attachment 2, worksheet "Ch. 7 – Port Deployment", PG&E proposes installation of 1,101 DCFC ports. Please explain how PG&E determined the size of its DCFC port proposal considering that the CEC transportation infrastructure analysis published in the Assessment states that only 430 additional DCFC chargers are needed statewide to meet the 2025 goal of 10,000 DCFC chargers.¹

ANSWER 04

PG&E's proposal to install 1,101 DCFC ports is over the entire life of the program, 2024 – 2028. Through 2025, PG&E plans to deploy 187 DC fast charging ports in the program, which is approximately 43% of the total 430 DC fast charging ports estimated to be needed to achieve the State's 2025 DCFC goal and is in line with the size of PG&E's service territory relative to the State. PG&E's proposed total installation of 1,101 DCFC ports through 2028 supports closing the gap of 27,891 DC fast charging ports needed by 2030 as estimated by the CEC in the Assessment.²

¹ CEC Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment (July 2021), p. 13. Available at: <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127> (accessed January 4, 2022).

² CEC Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment (July 2021), p. 14. Available at: <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127> (accessed January 19, 2022).

**Excerpt from Pacific Gas and Electric Company's Q4 2021
Program Advisory Council Meeting Slide Deck**

EV Fast Charge Program Update

Status as of 12/31/2021

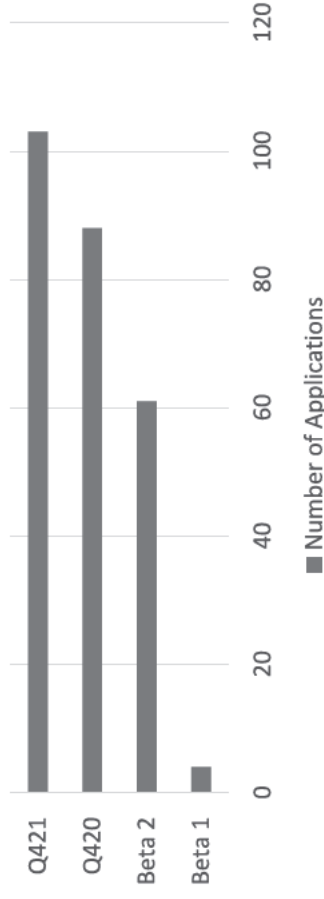
	Sites	Ports
Applications	256	1154
Contracted Sites	17	87
Final Design	13	71
Constructed	4	16
Activated	4	16

Program Budget Overview

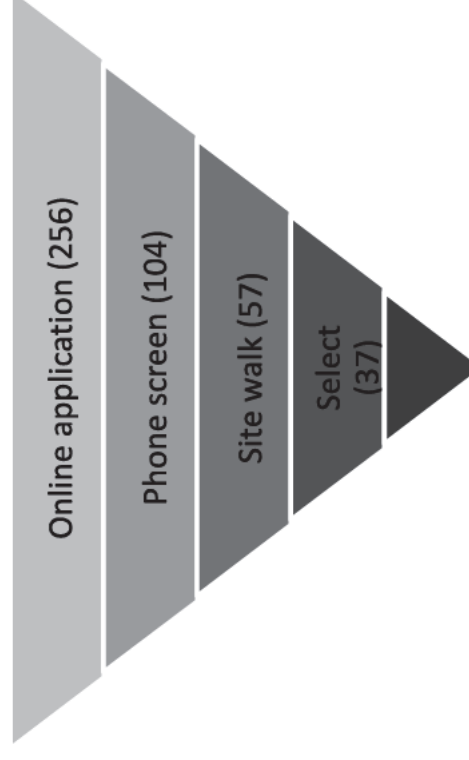
Spend-to-Date	Remaining Funds
\$4.6M	\$17.8M

- **Customer acquisition:** No additional site solicitations planned; program on track to be fully subscribed in 2022
- **Qualified Vendors** No additional vendor RFQs planned
- **Technology:** More applicants with higher kW chargers

Applications by Solicitation Window



Site Evaluation Progress Gates



**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 6(b)**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q6		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q06		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 06

- a) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...there is an outstanding demand to participate in the expiring or soon expiring program.”
- i. For PG&E’s EV Charge Network (EVCN) program, please provide the number of sites and the requested number of ports that are on PG&E’s waitlist or are otherwise scheduled to be installed.
- ii. For PG&E’s DC Fast Charge (DCFC) program, please provide the number of sites and the requested number of ports that are on PG&E’s waitlist or are otherwise scheduled to be installed.
- b) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...the Electrical Corporation clearly incorporates lessons learned from the pilot to maximize ratepayer benefits and reduce per port costs relative to the existing program.” Please provide a table showing the lesson(s) learned from EVCN that PG&E incorporates into EVC 2, and a description of how the lesson(s) learned reduces PG&E’s EVC 2 per port costs. If possible, provide a calculation of the cost reduction per port achieved by incorporating the lesson(s) learned.
- c) D.21-07-028, pp. 26-27, states that “[a]ny application for an extension to an existing program or pilot should demonstrate that...the Electrical Corporation provides rationale for how the proposal will help California meet the state charging targets without ratepayers taking on the full burden, taking into account any updates to the CEC’s [California Energy Commission’s] AB [Assembly Bill] 2127 report.” Please state the basis for, and provide documents demonstrating, how PG&E’s proposed program size and number of DCFCs takes into account the CEC’s AB 2127 report.

Answer 06

- a)
 - i. A PG&E installed 4,827 ports in EVCN and no additional ports are scheduled to be installed under the program.¹ There were four times the number of applicants as viable sites able to be served by the program.²
 - ii. PG&E has received 256 applications for 1,148 ports. This represents nearly five times the number of applicants as forecasted sites able to be served by the EV Fast Charge Program.³ Of applications received, four sites have been installed, and 17 more sites are contracted with customers and in the queue for installation.⁴

b)

<u>Lesson Learned</u>	<u>How does the lesson learned maximize ratepayer benefits and/or reduce per port costs relative to the existing program?</u>
<i>PG&E will use segment-specific customer cost share.</i> PG&E's experience in EVCN and EV Fast Charge was critical in validating and nuancing the foundational concept that customers are willing to contribute to the costs of a project. Through the deployment of EVCN and EV Fast Charge, PG&E has been able to work with customers to understand how they view their investment and the varying amounts different customers are willing to invest. (Prepared Testimony, Chapter 3)	Requiring customers to contribute a percentage amount of the total project cost is a means of bringing down the ratepayer-funded cost per site relative to existing programs. For example, in EVC 2, PG&E proposes to cover 80% of the project cost, up to \$10,000, for workplaces outside of AB 841 Prioritized Communities. \$10,000 represents just 80% of the BTM-only portion of project costs in EVCN. An additional ratepayer benefit of the increase customer cost share is to ensure that investments are used and useful: Site Hosts are likely to have even more "skin in the game" to ensure that the site remains an attractive

- ¹ See PG&E News Release, October 13, 2021. https://www.pge.com/en_US/about-pge/media-newsroom/news-details.page?pagerID=2d6cffcd-df97-4999-84b6-ccfaef5598fe&ts=1641338320281.
- ² Pacific Gas and Electric Company Electric Vehicle Charge 2 Prepared Testimony (PG&E Prepared Testimony), A.21-10-010, Oct. 26, 2021, Chap. 2, p. 2-2. As of a December 2020 analysis, there were 606 unserved applications, a combination of applications on the waitlist and leads, which was a designation used at tail end of EVCN to denote high opportunity customers that would be easy to move forward with, should the opportunity arise.
- ³ See *id.* at Chap. 2, p. 2-2 (EVC 2 Prepared Testimony originally reported that EV Fast Charge experienced "three times the number of applicants as forecasted"; however, after completing the most recent site solicitation in October 2021, that number rose to "five times the number of applicants as forecasted.").
- ⁴ See PG&E's Reply to Protests and Responses, December 9, 2021, for more details on the EV Fast Charge timeline and process.

	charging spot for EV drivers into the future.
<p><i>PG&E Will Utilize Automated Load Management (ALM) More Universally to Help Lower Costs.</i> EVCN successfully utilized ALM to serve customers whose projects would otherwise be too expensive to participate in the program. Using ALM technologies in EVCN, PG&E deployed charging infrastructure at sites in a manner that reduced the originally requested capacity by more than 50 percent to stay within the electrical capacity of the existing or lower cost infrastructure. This resulted in cost savings ranging from \$30,000 to \$200,000 per project. PG&E intends to look to ALM as a cost reducing measure from the beginning of each project design, rather than just when a project exceeds cost targets. PG&E will continue to advocate for the deployment of ALM technology in EVC 2 projects by working with site hosts to understand their charging needs, site conditions, and charging hardware capabilities. (Prepared Testimony, Chapter 5)</p>	<p>To further reduce costs of EVC 2, PG&E intends to continue leveraging ALM in EVC 2 to reduce costs to both site hosts and PG&E ratepayers and limit impacts to the local distribution system serving EVC 2 charging load, which also benefits PG&E ratepayers in the long run.</p>
<p><i>PG&E Will Support Low Cost Opportunities for Futureproofing When They Fit Within Program Cost Targets.</i> PG&E has experience tactically deploying futureproofing solutions for a variety of customer segments through its EV programs and expects that this can save customers and ratepayers money in the long-term. Futureproofing refers to marginally increasing the scope of work in the present to enable additional or higher-powered chargers to be installed later.⁵</p>	<p>The costs incurred today from futureproofing in EVC 2 are expected to be more than offset by the foregone future costs which are no longer needed (e.g., asphalt does not need to be retrenched since multiple conduits were added the first time), thus saving ratepayers money, thus maximizing ratepayer benefit.</p>
<p><i>PG&E Will Leverage Utilization Data from EVCN to Enhance Prioritization and Site Selection.</i> In the EV Fast Charge</p>	<p>Selecting sites which have a high probability of future utilization serves to benefit existing and potential EV drivers,</p>

⁵ The scope of futureproofing generally refers to the installation of wider or additional conduit and may also extend to other features such as larger switchgear, meter panels and upstream equipment.

<p>program, PG&E introduced the concept of evaluating utilization potential during the application and site selection process through indicative criteria such as regional EV adoption rates and EVSP reported forecasts. More EV Fast Charge sites need to be energized and available to the public before actual utilization can be compared between sites and used to improve the utilization indicators employed during site ranking and selection. However, PG&E can leverage the data collected since EV Fast Charge program inception to enhance and grow this site evaluation methodology for EVC 2 implementation.</p>	<p>as well as PG&E ratepayers. Increasing EV charger utilization has the potential to decrease electric rates over time.</p>
<p><i>Simplicity and Lower Installation and Ownership Costs.</i> Based on a survey conducted by PG&E, Participants in EVCN expressed a preference for PG&E to take care of the entire project, from initial design to installation of chargers, both to simplify the process for customers and to reduce customer costs. The primary concern among both Participants and Non-Participants was keeping costs low. PG&E is adept at spotting site conditions which may increase project costs beyond program targets based on implementing the EVCN and EV Fast Charge programs. To optimize program funding and minimize customer costs, EVC 2 will focus on L2 charging sites with 20 or more ports and DCFC sites with four or more ports. (Prepared Testimony, Chapter 3)</p>	<p>PG&E will aim to minimize EVC 2 ratepayer and customer costs per port by focusing from the start on L2 charging sites with 20 or more ports and DCFC sites with four or more ports will reduce costs per port. PG&E will further minimize program costs and maximize ratepayer benefits by focusing only sites most likely to be cost viable.</p>
<p><i>PG&E Will Create an Application Format to Effectively Prioritize Sites and Minimize Program Administration Costs.</i> In EVCN, PG&E did not collect information regarding utilization potential, estimated trench lengths, or accessible EV space and parking lot improvement requirements. In contrast, the EV Fast Charge application includes more complex questions than EVCN; these questions address site conditions and utilization potential, among other items.</p>	<p>The improved application format relative to EVCN will allow PG&E to more effectively prioritize cost-effective sites that have higher potential for future utilization, thus maximizing ratepayer benefit. This approach also enables PG&E (and thus ratepayers) to save administrative and project management costs by ensuring that site walks and preliminary designs are performed on high potential sites, reducing the number of customers who find they are unable to</p>

<p>PG&E will also continuously improve on previous program applications and further enhance site prioritization methodologies in EVC 2. (Prepared Testimony, Chapter 4)</p>	<p>participate due to higher costs or technical complexity, later in the process. The prioritization in EVC 2 will also increase program cost effectiveness and maximize ratepayer benefit.</p>
<p><i>PG&E Will Offer an Onsite Turnkey Solution, as Well as Workplace and Public Destination Charging, to Address the Demands and Needs from MFH AB 841 PC Customers.</i> The requirement for customer ownership can increase costs and project deployment responsibilities for many participating customers. PG&E will deploy a mix of workplace and public destination infrastructure in EVC 2 to ensure that communities receive sufficient EV charging support. If customers interested in installing EVSE on their property are unable to bear the increased costs and project deployment responsibilities imposed by D.21-07-028, access to nearby workplace or public chargers as an alternative will prove essential.</p>	<p>Providing a turnkey solution along with public destination sites to support customers who cannot or do not want to install onsite infrastructure meets customers needs, which is a way of ensuring the investments are used and useful, thus maximizing ratepayer benefit.</p>
<p><i>PG&E Will Focus Installation of DCFCs at Public Destinations as an Additional Means of Serving MFH Residents.</i> The challenges to EV adoption at MFHs are well-documented⁶ and a trend has emerged among market and policy leaders to address MFH needs through MFH-serving locations, such as chargers within a short walking distance of MFHs and DCFC at key destinations with reasonable dwell times within a short travel time of one or more MFHs. To date, utilization at MFHs in DACs is the lowest across all EVCN charger types. Many parking spots at MFHs are dedicated to</p>	<p>DCFCs have the potential for higher utilization than strictly on-site MFH charging, thus providing the opportunity for more downward pressure on rates.</p>

⁶ Report, Ecology Action, Innovations in Electric Vehicle Charging for Multifamily Dwellings, November 2020, https://ecoact.org/ea2020/wp-content/uploads/2020/11/Ecology-Action-Innovation-in-EV-Charging-for-MUDs_11.20.2020.pdf; see also Report, University of California, Los Angeles (UCLA) Luskin School of Public Policy, Evaluating Multi Unit Resident Charging Behavior at Direct Current Fast Chargers, February 2021, <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf>.

<p>specific units, capping charger usage potential. However, site hosts and other stakeholders have emphasized to PG&E the importance of being able to offer charging at dedicated parking spots in our programs in part because some other funding agencies who help defray the costs of EV charging stations excluded dedicated parking spots. PG&E thus learned that to address the access barriers for MFHs, EVC 2 should be a hybrid program that supports installation of onsite MFH chargers for customers where it is feasible, while also supporting installation of public charging, which has potential for market lift by providing accessibility to the whole resident population, not just the occupants of specific units. (Prepared Testimony, Chapters 1 and 3)</p>	
<p><i>PG&E Will Improve Application Evaluation Times and Conversion Rates by Increasing EVSP Involvement in the Application Process.</i> In EVCN, the site host completed the application. In EV Fast Charge, EVSPs complete program applications on a site's behalf, rather than the site host doing so themselves. The theory behind the EV Fast Charge application process is that it requires more sites to speak to their prospective EVSP and learn about the costs and complexities of EV charging hardware before applying to the program, leaving the customer more informed and prepared for participation in the program. It also enables PG&E to collect more technical information in the application beyond what an average customer may feel knowledgeable about or comfortable providing, which leads to better site prioritization and reduced administrative and project management costs.</p> <p>By also allowing EVSPs to complete applications on the customer's behalf, EVC 2 will benefit from a customer who is more educated about the market and the value the program is offering to them.</p>	<p>Allowing EVSPs to submit applications on a Site Host's behalf has the potential to reduce PG&E's administrative and project management costs relative to EVCN.</p>

<p>The site eligibility and customer commitment process will also likely be expedited as time spent considering options and alternatives will have been done in advance of applying to the program. (Prepared Testimony, Chapter 4)</p>	
<p><i>PG&E Will Deploy Innovative Partnerships and Marketing, Education and Outreach Tactics for Site Hosts After Installation to Bolster EV Adoption.</i> In evaluating EVCN site utilization, PG&E found that site hosts that performed “post energization marketing, education, and outreach (ME&O)” saw up to three times higher utilization than the program average. As PG&E’s goal in deploying EVC 2 is to accelerate EV adoption, and as higher utilization may be indicative of EV adoption near installed infrastructure, PG&E is including post energization outreach as a key component to the EVC 2 ME&O Plan. (Prepared Testimony, Chapter 6)</p>	<p>Increased utilization can lead to downward pressure on rates, thus maximizing ratepayer benefit from their investment in EVC 2.</p>
<p><i>PG&E Will Focus on Improving Data Sharing and Alignment with Other Funding Entities.</i> Ancillary funding is often needed by site hosts in order to proceed with an EV charging installation. PG&E has experience stacking state and local incentives with its EV programs to ensure customers receive the maximum amount of support without duplicating the efforts of any funding entities. Through PG&E’s regular meetings with grant administrators, PG&E has learned the value of sharing grant or rebate recipient lists (and dollar values) between agencies to ensure customers receive the maximum level of support and to ensure that agencies are not paying customers in excess of customer project costs. If agencies, administrators, community choice aggregators (CCA), and utilities do not mutually share data, they run the risk of customer free ridership and claiming beneficial market intervention when none occurred in practice. PG&E will continue</p>	<p>Enabling customers to stack available incentives means that some customers who wouldn’t be able to fund charging infrastructure with EVC 2 funds alone will be able to proceed with the electrification plans. That each dollar of EVC 2 can go further is a way of maximizing ratepayer benefit from EVC 2.</p>

<p>to serve as the central aggregator of site information and disparate sources of funding for the EVC 2 program. PG&E will pursue partnerships with other organizations offering transportation electrification (TE) incentives and programs to explore how EVC 2 incentives can stack or complement with other TE program offerings, and vice versa. (Prepared Testimony, Chapter 3)</p>	
<p><i>PG&E Will Coordinate with Local Organizations to Facilitate Site Acquisition and Increase Customer Awareness, Notably in AB 841 PCs.</i> Building on coordination in EVCN, PG&E will continue to seek input, support, and collaboration opportunities on customer education and outreach from potential partners (like CCAs and Community-Based Organizations) to facilitate site acquisition, improve program participation, and enhance the customer experience, especially in AB 841 PCs. (Prepared Testimony, Chapter 6)</p>	<p>Local organizations oftentimes have important insights about what a community's needs, and what criteria will make an EV project in their community successful. Coordination with local organizations thus maximizes ratepayer benefit.</p>
<p><i>PG&E Will Provide Incentives to Support Installation of EV Infrastructure During New Building Construction.</i> Nine sites involving new construction applied but were not accepted to EVCN because of the added complexity and longer timeframe associated with aligning EV project milestones with the broader new construction project milestones, which include much more complex designs. Furthermore, EVCN was initially approved as a three-year program, a duration which is shorter than many new construction timelines. EVC 2 is a five-year program, enabling PG&E to consider new construction project timelines. Additionally, PG&E will offer rebates for customer owned infrastructure in EVC 2 as opposed to a utility owned solution, to avoid creating the complexity the PG&E</p>	<p>Enabling new construction sites to participate in EVC 2 will allow for over 4x cost savings because co-timing charger installation with the initial electric design of a building may avoid the need for future costly retrofits to accommodate EV charging.⁷ By incorporating rebates for new construction sites into EVC 2, PG&E can also take advantage of the robust ME&O efforts and share program administration costs that will be deployed for the program, rather than proposing EV rebates for new construction under a separate application as authorized in D.21 07 028. Including new construction rebates in EVC 2 rather than treating as a separate program allows for a more efficient use of ratepayer funds.</p>

⁷ Report: Energy Solutions and PG&E, [PEV Infrastructure Cost-Effectiveness Report for San Francisco Final, November 2016, p. 6.](#)

project delivery team encountered in EVCN due to the need to align with broader new building design and engineering requirements and schedules. (Prepared Testimony, Chapter 3)	
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- c) Per D.21-07-028, Electrical Corporations must use the Assembly Bill (AB) 2127 report and updates to determine infrastructure needs. The AB 2127 Report concludes, “To meet the 2025 goal of 250,000 public and shared chargers, the state needs about 57,000 more than are currently planned, representing a 24 percent shortfall of Level 2 chargers and a 4 percent shortfall of DC fast chargers.”⁸ The report’s finding of the DC fast charging (DCFC) shortfall, along with its finding of the need for public charging, as detailed in the paragraphs below, influenced and supported PG&E’s decision to include a target of ~1,100 ports of DCFC in EVC 2.

A recent CEC study of charging distribution highlights that at the “census tract level, more chargers appear in census tracts with low population density than in tracts with high population density.”⁹ The authors of the AB 2127 Assessment concluded, “[T]his preliminary analysis indicates that more public charging investments may need to be targeted toward low-income communities and high-population-density neighborhoods to enable more proportionate charging infrastructure distribution throughout the state.”¹⁰ The AB 2127 report also notes that drivers who lack reliable charging at home or work, including those who do not live in single-family homes, will rely on public charging for their mobility needs.¹¹ Accordingly, EVC 2 will help bridge the gap between low-density and high-density charger availability by supporting installation of infrastructure for charging ports to serve MFH residents, including through ~6,400 L2 ports onsite at MFH as well as ~8,500 L2 ports at workplaces and public destinations and ~1,100 DCFC ports at public destinations conveniently accessible by MFH residents.

Including the 16,000 total ports proposed in EVC 2, the number of charging ports approved in IOU TE programs to-date represent just four percent of those needed by 2030.¹² Although a small percentage of overall need, installation of ports through IOU programs helps address the adoption barrier presented by a lack of charging infrastructure.

⁸ California Energy Commission, Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Analyzing Charging Needs to Support ZEVs in 2030. Page 28. Published July 14, 2021.

⁹ CEC SB 1000 Study, discussed on pp. 14-17 of CEC AB 2127 Assessment, Available here: [TN238853_20210714T100900_Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Anal.pdf](#) (Accessed October 14, 2021).

¹⁰ *Ibid.* p. 17.

¹¹ *Ibid.* p. 28.

¹² PG&E calculates the four percent based on a total of 51,262 ports approved in IOU programs, of the 1.2 million ports needed to support the EO. (See D.16-01-023, D.16-01-045, D.16-12-065, D.18-05-040, D.19-11-017, D.20-08-045, D.21-04-014)

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 15**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	Cal Advocates_001-Q15		
PG&E File Name:	ElectricVehicleCharge2_DR_Cal Advocates_001-Q15		
Request Date:	December 10, 2021	Requester DR No.:	001
Date Sent:	January 7, 2022	Requesting Party:	Cal Advocates
PG&E Witness:		Requester:	Alan Bach

QUESTION 15

Please state the basis for, and provide documents demonstrating, how PG&E will implement cost sharing for a site that elects to utilize Automated Load Management (ALM), yet also has costs below PGE's cost sharing threshold. Please state the basis for, and provide documents demonstrating, how PG&E proposes to implement cost sharing for a site that elects to utilize Automated Load Management (ALM), yet also has costs below PGE's cost sharing threshold. For example, on p. 3-3 of PG&E's Testimony, PG&E's proposed cost sharing rebate for workplaces and public destinations located in an AB 841 PC would cover 90% of the BTM costs. If a site is below PG&E's cost threshold and ALM allows the site to save \$1,000 per port, does PG&E propose that it will provide the site with an ALM incentive of \$900 ($\$1000 \times 90\%$) per port, as that is the cost savings that ALM would provide to PG&E?

ANSWER 15

If costs per port come in below the program cost thresholds, savings will be shared with the host customer via the cost share methodology and tiered incentive structure of EVC 2.¹ For example, consider a workplace site in an AB 841 PC that would cost \$11,000 per port without ALM. PG&E, as part of its evaluation process,² recommends a level of ALM that could best meet site host's charging needs while lowering total BTM costs per port by \$1,000.

If the customer were to decline the recommendation and proceed without utilizing ALM, PG&E would pay for 90% of the per port project costs (\$9,900) and the customer would be responsible for the remaining 10% (\$1,100).³ If the customer instead accepts the recommendation to utilize ALM, the cost per port would then be \$10,000. PG&E will cover 90% of the costs of the project (\$9,000), and the customer will be responsible for the remaining 10% (\$1,000).

¹ PG&E, EVC 2 Prepared Testimony, 5-2.

² *Id.*

³ As per Table 3-1 in PG&E's EVC 2 Prepared Testimony, PG&E proposes a BTM Make-Ready Incentive of 90 percent up to \$12,000 per port for workplace sites in AB 841 PCs.

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_004,
Question 2**

PACIFIC GAS AND ELECTRIC COMPANY
Electric Vehicle Charge 2
Application 21-10-010
Data Response

PG&E Data Request No.:	CalAdvocates_004-Q002		
PG&E File Name:	ElectricVehicleCharge2_DR_CalAdvocates_004-Q002		
Request Date:	January 14, 2022	Requester DR No.:	004
Date Sent:	January 28, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Arthur Tseng

Please provide **complete responses** to the following questions. When referencing other documents, please also provide the specific quotes and attachments that form the basis for the referenced documents **and** answer the questions asked.

QUESTION 002

Referring to p. 2-4 of PG&E's Testimony, PG&E raises concerns about the risk of customer attrition once customers understand the cost and construction obligations of the customer-ownership model:

- a. Does PG&E plan to offer financing options to lower the up-front cost burden on customers? If so, please describe the financing options that will be offered, and how they will be offered to customers.
- b. Does PG&E plan to offer third party EVSP sponsorship models where a third party EVSP can operate and maintain EVSEs?

ANSWER 002

- a. PG&E is actively exploring alternative financing options that would serve to lower the up-front cost burden on customers, at the time of writing, no such options are yet available for participants of EVC 2.
- b. PG&E plans to offer third party EVSP sponsorship models where a third party EVSP can operate and maintain EVSEs, having demonstrated success at least through the contract signing stage with the Fast Charge and Fleet programs under this model.

**Excerpt from Pacific Gas and Electric Company's EVC2
Workpapers – Inputs Worksheet**

Revenue Requirements Compliant Proposal Estimation Model

Model Inputs		Analysis of M
	(\$)	Dec-22
Analysis Period		Jan-23
Analysis Life		25
Sensitivity		0.010
Jurisdiction		CPUC
Fixed Costs		1.000000
Variable Costs		1.000000
Plant Investment (Nominal)		
Gross Plant Additions		
EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise		94,576,401
EDP36902 - Distbn Plant: UG Services		-
EDP36801 - Distbn Plant: OH Line TX		-
EDP36700 - Distbn Plant: UG Conductor/Devices		-
EDP36600 - Distbn Plant: UG Conduit		-
EDP37000 - Distbn Plant: Meters		-
EDP36802 - Distbn Plant: UG Line TX		-
EDP36400 - Distbn Plant: Poles Towers, Fixtures		-
EDP36500 - Distbn Plant: OH Conductor/Devices		-
EDP37304 - Distbn Plant: Streetlight Electoliers		-
EDP37101 - Distbn Plant: Electric Charging Station		1,309,925
EGP39400 -Genl Plant: Tools, Shop, and Garage Equipment		-
EDP37302 -Distbn Plant: Streetlight Conduiti/Cable		-
Investment 14		-
Investment 15		-
Retirements		
EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise		-
EDP36902 - Distbn Plant: UG Services		-
EDP36801 - Distbn Plant: OH Line TX		-
EDP36700 - Distbn Plant: UG Conductor/Devices		-
EDP36600 - Distbn Plant: UG Conduit		-
EDP37000 - Distbn Plant: Meters		-
EDP36802 - Distbn Plant: UG Line TX		-
EDP36400 - Distbn Plant: Poles Towers, Fixtures		-
EDP36500 - Distbn Plant: OH Conductor/Devices		-
EDP37304 - Distbn Plant: Streetlight Electoliers		-
EDP37101 - Distbn Plant: Electric Charging Station		-
EGP39400 -Genl Plant: Tools, Shop, and Garage Equipment		-
EDP37302 -Distbn Plant: Streetlight Conduiti/Cable		-
Investment 14		-
Investment 15		-
Removal Costs		
EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise		-
EDP36902 - Distbn Plant: UG Services		-
EDP36801 - Distbn Plant: OH Line TX		-
EDP36700 - Distbn Plant: UG Conductor/Devices		-
EDP36600 - Distbn Plant: UG Conduit		-
EDP37000 - Distbn Plant: Meters		-
EDP36802 - Distbn Plant: UG Line TX		-
EDP36400 - Distbn Plant: Poles Towers, Fixtures		-
EDP36500 - Distbn Plant: OH Conductor/Devices		-
EDP37304 - Distbn Plant: Streetlight Electoliers		-
EDP37101 - Distbn Plant: Electric Charging Station		-
EGP39400 -Genl Plant: Tools, Shop, and Garage Equipment		-
EDP37302 -Distbn Plant: Streetlight Conduiti/Cable		-
Investment 14		-
Investment 15		-
Salvage		
EDP37102 - Distbn Plant: EVC Infrastructure on Customer Premise		-
EDP36902 - Distbn Plant: UG Services		-
EDP36801 - Distbn Plant: OH Line TX		-
EDP36700 - Distbn Plant: UG Conductor/Devices		-
EDP36600 - Distbn Plant: UG Conduit		-
EDP37000 - Distbn Plant: Meters		-

EDP36802 - Distbn Plant: UG Line TX	-
EDP36400 - Distbn Plant: Poles Towers, Fixtures	-
EDP36500 - Distbn Plant: OH Conductor/Devices	-
EDP37304 - Distbn Plant: Streetlight Electoliers	-
EDP37101 - Distbn Plant: Electric Charging Station	-
EGP39400 -Genl Plant: Tools, Shop, and Garage Equipment	-
EDP37302 -Distbn Plant: Streetlight Conduiit/Cable	-
Investment 14	-
Investment 15	-

Expense Estimates (Nominal)

Expense	179,938,891
Production	
Labor	-

**Excerpt from Pacific Gas and Electric Company's EVC2
Workpapers – RO Worksheet**

Revenue Requirements Summary

Line	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
1	Operating Expenses:																											
2	Production	6,727,618	1,537,551	25,969,973	52,348,036	57,886,176	13,788,815	11,173,731	10,865,562	10,327	10,091,239	9,785,36	9,18,73	9,98,605	8,952,536	8,688,716	8,31,11	8,170,17	7,870,680	7,597,58	7,250,028	6,923,323	6,63,623	6,36,823	6,09,822	5,82,822	5,55,822	5,28,822
3	Production	6,686,37	1,500,73	2,469,900	37,008,709	67,709	7,38,227	2,6,307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Production	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Transmission	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Customer Accounts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Customer Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	To a CPUC Jurisdictional Revenue Requirement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Capital Revenue Requirement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Expense Revenue Requirement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Cal Advocates Testimony on Southern California Edison
Company's Charge Ready 2 Program Application
(A.18-06-015)**

Docket:	<u>A.18-06-015</u>
Exhibit Number	: _____
Commissioner	: <u>Peterman</u>
Admin. Law Judge	: <u>Goldberg</u>
Public Advocates	: <u>Liam Weaver</u>
Office Coordinator	: _____



**PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION**

**TESTIMONY ON
SOUTHERN CALIFORNIA EDISON COMPANY'S
APPLICATION FOR APPROVAL OF ITS CHARGE
READY 2 INFRASTRUCTURE
AND MARKET EDUCATION PROGRAMS**

San Francisco, California
November 30, 2018

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1 **I. INTRODUCTION**

2 This testimony was prepared by the Public Advocates Office, formally the
3 Office of Ratepayer Advocates,¹ at the California Public Utilities Commission
4 (Commission) in the proceeding of Application (A.) 18-06-015. As part of this
5 docket, Southern California Edison Company (SCE) requests Commission
6 approval to implement its proposed Charge Ready 2 Infrastructure and Market
7 Education Programs (Charge Ready 2). In this testimony, the Public Advocates
8 Office presents its analysis and recommendations associated with SCE’s requests.

9 Liam Weaver served as the Public Advocates Office’s project coordinator
10 for this testimony. Alan Bach, Nathan Chau, Fidel Leon Diaz, Danielle Dooley,
11 Benjamin Gutierrez, and Liam Weaver served as Public Advocates Office’s
12 witnesses and are responsible for sections listed below. Their prepared
13 qualifications and testimony are contained in Appendix A of this report. Legal
14 counsel for this proceeding is Tovah Trimming.

15 List of Public Advocates Office’s Witnesses and Respective Sections

Section	Witness
Chapter 1, A,F,Q	Alan Bach, Liam Weaver
Chapter 1, B,C,D,E,G	Alan Bach
Chapter 1, H, I, J	Fidel Leon Diaz, Liam Weaver
Chapter 1, K,L,M,N,S,T	Fidel Leon Diaz
Chapter 1, O, R	Danielle Dooley, Liam Weaver
Chapter 1, P, U	Danielle Dooley
Chapter 2, II	Nathan Chau
Chapter 2, II	Benjamin Gutierrez

¹ The Office of Ratepayer Advocates was renamed the Public Advocates Office of the Public Utilities Commission pursuant to Senate Bill No. 854, which was signed by the Governor on June 27, 2018 (Chapter 51, Statutes of 2018).

II. BACKGROUND

In accordance with Rule 13.8 of the California Public Utilities Commission (Commission) Rules of Practice and Procedure, and the October 29, 2018 Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge (Scoping Memo), the Public Advocates Office submits this intervenor testimony on SCE's proposed Charge Ready 2 program, a light-duty electric vehicle (EV) charging infrastructure and market education program.

SCE requests \$760 million to support deployment of infrastructure and rebates to support 48,000 EV charging stations and broad marketing, education, and outreach (ME&O) activities in its service territory over a four-year period.

Table 1 below summarizes SCE's proposed Charge Ready 2 portfolio.

Table 1 - Proposed Charge Ready 2 Portfolio²

Charge Ready 2 Portfolio Programs	Type of Program	Targeted Number of Ports	Target Customer Segments	Purpose
Make-Ready Expansion	Infrastructure + electric vehicle supply equipment (EVSE) Rebate	32,000	MUD / Workplace / Destination Center / Fleet	A continued focus on away-from-home charging at workplace and public charging locations as well as charging at MUDs.
<i>SCE Own & Operate (ports included in SCE Make-Ready Expansion total)</i>	<i>Infrastructure</i>	<i>up to 4,230</i>	<i>MUD / Government</i>	New solution to address the unique challenges faced by MUDs and government entities. One-third of SCE customers live in MUDs and have limited access to at-home charging options.
New Construction Rebate	Rebate	16,000	MUD	New solution to address the unique challenges faced by MUDs. Rebates to cover all or part of the costs of charging equipment in newly constructed MUDs.
EV Awareness Campaign	Service	N/A	All Customers	A robust marketing, education and outreach program for all customers.
Customer Education Campaign	Service	N/A	Prospective EV owners	
TE Advisory Services	Service	N/A	Business Customers	

In 2015, the Commission approved a one-year pilot program for SCE (Charge Ready Pilot) to deploy infrastructure for up to 1,500 light-duty EV charging stations and market education. The decision authorizing the Charge Ready Pilot, Decision (D.) 16-01-023, required SCE to file a report outlining data and lessons learned from the Charge Ready Pilot before submitting a Phase 2

² SCE Amended Prepared Testimony in Support of Southern California Edison Company's Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs ("SCE Opening Testimony"), p. 4.

1 application for an additional 28,500 EV charging stations, or electric vehicle
2 supply equipment (EVSE).³

3 Charge Ready 2 as proposed by SCE expands on the Charge Ready Pilot by
4 scaling up existing program elements and adding new components. In addition to
5 the portfolio shown in Table 1, SCE includes modifications from the Charge
6 Ready Pilot such as the inclusion of 200 direct current fast charger (DCFC)
7 stations as part of the make-ready expansion, a minimum of 30% of installations to
8 be installed in disadvantaged communities (DACs), and a focus on targeting
9 customers living in multi-unit dwellings (MUDs). Table 2 below shows a
10 summary of the program portfolio costs.

11 **Table 2 - Charge Ready 2 Proposed Costs (\$Million)⁴**

Charge Ready 2 Portfolio	<u>Total Cost</u>
Make-Ready Expansion	\$596.2
Ownership and Operation	\$28.0
Program Labor/Non-labor	\$28.3
New Construction Rebate	\$66.1
Marking, Education, Outreach	\$41.5
TOTAL	\$760.1

³ Decision 16-01-023, Ordering Paragraph 6, p. 60.

⁴ SCE Opening Testimony, p. 75.

1 **CHAPTER 1 - SCE’S CHARGE READY 2 INFRASTRUCTURE**
2 **AND MARKET EDUCATION & OUTREACH PROGRAMS**

3 (Witnesses: Alan Bach, Fidel Leon Diaz, Danielle Dooley, and Liam Weaver)
4

5 **I. SUMMARY OF RECOMMENDATIONS**

6 The Public Advocates Office conducted an in-depth review and analysis of SCE’s
7 Application for Charge Ready 2 and provides the below summary of its
8 recommendations.

- 9 • SCE’s program should be approved with a budget of \$399 million. By
10 incorporating Public Advocates Office’s recommendations, SCE can support its
11 proposed program size at reduced costs.
- 12 ○ The Commission should reject SCE’s proposed 2 ports per site
13 minimum. Instead, the Commission should adopt a minimum of 5
14 ports per site for disadvantage communities and a minimum of 10
15 ports per site for non-disadvantaged communities to maintain
16 customer participation and minimize per port costs.
- 17 ○ SCE’s assumption for the purposes of program size and budget that
18 ‘greater than 40 ports per site’ have only 40 ports per site should be
19 rejected, because this inaccurately increases per port cost estimates.
- 20 ○ If the Commission grants SCE’s Petition for Modification of
21 D.16-01-023 seeking bridge funding of \$22 million for the Charge
22 Ready Pilot, the Charge Ready 2 budget should be reduced by the
23 amount authorized, if any.⁵
- 24 ○ The Commission should reject SCE’s proposal to provide 100%
25 rebates to all customers. Instead, the Commission should adopt the
26 same rebate amounts it adopted for SCE in the Charge Ready Pilot
27 (i.e. 100% to customers in disadvantaged communities, 50% to multi-
28 unit dwellings customers in non-disadvantaged communities, and
29 25% to non-residential customers not in disadvantaged communities).
- 30 ○ SCE’s per site cost estimates should be further reduced to align with
31 installation cost data of similar programs.

⁵ On November 15, 2018, a proposed decision in A.14-10-014 was issued granting SCE’s petition for modification. If adopted by the Commission, SCE would be authorized an additional \$22 million for its Phase 1 pilot. This amount would be reduced from SCE’s Phase 2 budget.

- 1 • SCE should incorporate programmatic changes in its Charge Ready 2 program to
2 increase the likelihood of widespread transportation electrification deployment and
3 incremental electric vehicle adoption.
 - 4 ○ SCE should prioritize direct current fast chargers at sites with
5 (1) short dwell times, (2) a high likelihood of off-peak charging, and
6 (3) accessibility to customers in multi-unit dwellings.
 - 7 ○ SCE's should develop site prioritization criteria in consultation with
8 the Program Advisory Council. The criteria should include
9 requirements to ensure new electric vehicle adoption, charging station
10 utilization, cost-effectiveness of site installations. SCE should be
11 required to seek approval of the criteria through a Tier 2 advice letter.
 - 12 ○ SCE's New Construction Rebates program should be approved.
 - 13 ○ SCE should incorporate lessons learned from the Charge Ready Pilot
14 into Charge Ready 2.
 - 15 ○ SCE should consult with community-based organizations or other
16 groups representing customers residing in disadvantaged
17 communities, and identify destination center locations where charging
18 infrastructure is most needed.
 - 19 ○ Charging stations 'at or near' multi-unit dwellings should target
20 multi-unit dwelling residents and be publicly accessible to maximize
21 utilization during the day.
 - 22 ○ The Commission should not authorize SCE to own electric vehicle
23 supply equipment in multi-unit dwellings or governmental entity
24 locations.
 - 25 ○ Alternatives to utility ownership of the electric vehicle supply
26 equipment should be explored.
 - 27 ○ Customers should maintain the electric vehicle service equipment for
28 a minimum of 10 years.
- 29 • SCE should be held to performance accountability metrics.
 - 30 ○ SCE should incorporate smart charging into its distribution planning
31 process and should align its demand response program with the
32 Commission's Distributed Energy Resource Action Plan.
 - 33 ○ SCE's should report on its coordination of Charge Ready 2 with
34 sustainability transportation systems, alternative mobility and urban
35 planning.
 - 36 ○ SCE should provide an estimate for greenhouse gas emissions
37 reductions attributable to its proposed Charge Ready 2 program via a
38 tier 2 advice letter and in its quarterly reports.

- SCE’s 30% minimum deployment of installations in disadvantaged communities should be binding.
- SCE should introduce additional benchmarks to track performance accountability such as a minimum multi-unit dwelling deployment goal of 30% of ports, minimum charging utilization rates, and a binding program deployment of 32,000 ports.
- Marketing, Education, and Outreach Program
 - SCE’s proposed Marketing, Education, and Outreach strategy should be modified and the budget reduced to \$4.8 million.

II. DISCUSSION

A. SCE’s Cost Assumptions Are Not Supported.

SCE’s request for \$760 million is not fully supported and unreasonably impacts ratepayers as proposed. SCE’s workpapers include per site cost estimates and a series of assumptions for additional site cost adders, including: (1) the need for line extension, new meter, and service from existing grid infrastructure to the site; (2) Americans with Disabilities Act (ADA) access path with ramp; (3) surface mount conduit; (4) service from existing transformer; and (5) other miscellaneous cost adders.⁶ SCE’s make-ready per port cost estimates, excluding rebates for electric vehicle supply equipment (EVSE), are approximately \$16,273.⁷

The Public Advocates Office evaluated SCE’s per port cost estimates and finds them to be high compared to other similar programs and studies, and from cost information from the Charge Ready Pilot where SCE has reported on 1,066 out of the total 1,266 ports completed or in progress.⁸ SCE claims that its use of ‘packaged site designs’, which SCE defines as the ability to leverage buying power for multiple

⁶ SCE Response to Public Advocates Office Data Request 1, Q1. Charge Ready 2 Master Workpaper.

⁷ SCE’s Charge Ready 2 Master Workpaper, Tab “CR2 Portfolio (Four Year)” Cell M14 shows average per port cost of \$18,007 for the Level 1, Level 2 infrastructure plus Rebate. Subtracting the rebates out of this formula gives per port costs of \$16,273 per port

⁸ Charge Ready and Market Education Programs Pilot Report, Amended July 2018. (“Amended Pilot Report”), p. 36.

metering panels at once rather than site-specific special order panels, reduces cost estimates.² SCE also claims other lessons learned from the Charge Ready Pilot reduce Charge Ready 2 cost estimates such as site feasibility reviews, the ability to use customer distribution facilities, streamlined plan check processes and reduced fees with authorities having jurisdiction, and procurement strategies.¹⁰

However, SCE estimates the average per port cost for Charge Ready 2 to be \$16,273, which is more costly than the Charge Ready Pilot installation costs of \$12,525 per port.¹¹ It is unclear how SCE's proposed 'packaged site design' and other cost savings affect SCE's per site costs and why the average cost per port is so high. The Public Advocates Office finds that SCE's determination of this average cost is unsupported by SCE, and SCE should take measures to reduce its cost estimates. As explained below, after incorporating lessons learned, adjusting assumptions, and including additional per site cost-savings, the Public Advocates Office estimates the per port site costs for SCE's Charge Ready 2 can be reduced to approximately \$8,000 per port.

Recent EVSE installation projects and studies have shown EVSE installation costs significantly lower than SCE's estimates. For example, data from the Commission/NRG Energy Settlement program shows installation of 6,875 make-ready stubs at a cost of \$40 million.¹² This is an average of \$5,814 per stub, or approximately one third of SCE's proposed average cost of \$16,273 per port. NRG has installed 6,119 ports at 721 sites,¹³ which means NRG has less economies of scale than SCE (8.5 ports per site, whereas

² SCE Opening Testimony, p. 46.

¹⁰ SCE Opening Testimony, p. 46-47.

¹¹ Amended Pilot Report, p. 36.

¹² <<http://www.cpuc.ca.gov/General.aspx?id=5936>> In 2012, the Federal Energy Regulatory Commission approved an agreement between NRG Energy and the CPUC to settle outstanding legal issues regarding the California energy crisis. The settlement requires NRG to invest \$102.5 million to deploy electric vehicle charging infrastructure across the state.

¹³ NRG Energy, Inc. Settlement Year 6 – Third Quarter Progress Report to California Public Utilities Commission, *Electric Vehicle Charging Station Project*. Submitted October 5, 2018.

1 SCE, even with estimates reducing the port minimum to 2, still averaged 9.9 ports/site).
2 Additionally, assumptions in the second amendment to the long-term contract settlement
3 indicate a single stub, or port, requirement corresponding to each \$4,000 in funds
4 allocated.¹⁴

5 The Electric Power Research Institute's (EPRI) study on EVSE installation costs
6 reveals an average cost of \$4,412 per EVSE for commercial sites within California.¹⁵
7 The study, conducted in 2013, also indicates that installation costs have been trending
8 downward since 2009 and earlier. EPRI's report also shows average installation costs for
9 MUD sites of \$3,744.¹⁶ A study by the United States Department of Energy reveals an
10 average installation cost of \$3,552, or approximately \$4,500 per EVSE for publicly
11 accessible sites within California.¹⁷ The absolute maximum installation cost was \$12,700,
12 still \$4,000 less expensive than SCE's *average* proposed cost.

13 A similar study conducted by the Rocky Mountain Institute (RMI) reveals average
14 parking garage installation costs of \$5,500 for a single station, which drops down to just
15 over \$4,000 per EVSE for 5 stations.¹⁸ A curbside installation was found, on average, to
16 cost \$9,100, which drops below \$6,000 per EVSE with dual stations. Similar to the RMI
17 study findings, the state of New York recently announced a rebate program that provides
18 \$4,000 rebates for installations, which the initiative claims will support up to 80% of
19 typical installation costs.¹⁹

¹⁴ Second Amendment to Long-Term Contract Settlement and Release of Claims Agreement, between California Public Utilities Commission and Dynegy Parties. p.5.

¹⁵ Electric Power Research Institute, "Electric Vehicle Supply Equipment Installed Cost Analysis." December 2013, p. xii.

¹⁶ Electric Power Research Institute, "Electric Vehicle Supply Equipment Installed Cost Analysis." December 2013, p. xii.

¹⁷ United States Department of Energy, "Costs Associated With Non-Residential Electric Vehicle Supply Equipment." November 2015, p. 16-17.

¹⁸ Rocky Mountain Institute, "Pulling Back the Veil on EV Charging Station Costs." April 2014. < <https://rmi.org/pulling-back-veil-ev-charging-station-costs/>>

¹⁹ New York State Energy Research and Development Authority (SERDA).
<<https://www.nyserda.ny.gov/About/Newsroom/2018-Announcements/2018-09-18-Governor-Cuomo-Launches-First-Electric-Vehicle-Charging-Station-Installation-Rebate-Initiative-for-Public-and-Private>

Table 3 below shows the average cost of installations per EVSE across the various studies as compared to SCE's proposed costs. As shown, it is not clear whether SCE is assuming dual or single port EVSEs. If SCE is assuming dual ports EVSEs, which are commonly used, this makes the cost estimates even more extreme.

Table 3 - Site Cost Estimates Comparison

Source	Site Costs per EVSE
New York SERDA	\$ 4,000.00
Rocky Mountain Institute	\$ 4,200.00
EPRI	\$ 4,212.00 ²⁰
US DOE	\$ 4,500.00
NRG/CPUC Settlement	\$ 5,814.00
Public Advocates Office Proposed	\$ 8,050.00
SCE Proposed (Assuming 1 port per EVSE)	\$ 16,273.00
SCE Proposed (Assuming 2 ports per EVSE)	\$ 32,546.00

Though SCE recorded costs for the Charge Ready Pilot and developed per site cost estimates for Charge Ready 2, it is unclear whether the installations were completed cost-effectively. It is also unclear how SCE, a large investor-owned utility with the potential ability to leverage large economies of scale and significant resources, average cost estimates exceed those recorded by other sources by 300%. SCE lacks appropriate cost-savings strategies for Charge Ready 2 in its development of budget and port deployment goal.

The Commission should reject SCE's unsupported cost estimates and instead adopt the Public Advocates Office's per port cost estimate adjustments. The Public Advocates Office recommends a series of adjustments to SCE's assumptions and program requirements, outlined further in Sections B-E of this testimony, that reduce per

Locations>

²⁰ EPRI gives average MUD costs of \$3,744 per EVSE and average commercial costs of \$4,412 per EVSE. Public Advocates Office assumes a distribution of 30% in MUDs and 70% in commercial to yield a weighted average of \$4,212.

1 site costs to \$12,291.²¹ Based on the remaining discrepancy between this value and the
2 per site cost from the studies discussed above, SCE's average per site cost estimates
3 should be reduced by an approximate additional \$4,240 per port.²² This reduction in costs
4 would maintain the structure and data collection from the Charge Ready Pilot, make
5 SCE's cost estimates more consistent with those of NRG, EPRI, and RMI, and
6 incorporate the cost savings strategies learned through the Charge Ready Pilot. A
7 summary of Public Advocates Office's adjustments to per site and total program costs is
8 listed in Section F of this testimony.

9 **B. The Commission Should Reject SCE's Proposal to Reduce**
10 **Port Minimum Requirements to 2 Ports Per Site.**

11 Consistent with Charge Ready Pilot requirements, SCE should retain the port
12 minimum requirements of 5 ports per site at DACs, and 10 ports per site at non-DACs.²³
13 SCE's proposal to reduce the minimum ports per site requirements would significantly
14 and unnecessarily increase overall program costs for a given program size because
15 smaller sites do not achieve economies of scale.

16 Although SCE proposes to reduce the ports per site from 5 to 2, SCE failed to
17 include in its application direct cost estimates of sites with a minimum of two ports.²⁴

²¹ Reductions in per site cost estimates from \$16,273 to \$12,291 are achieved by the methodologies discussed in sections B and C of this testimony, and illustrated further in Appendix B, Table 1. Section B correlates to a reduction in total utility side make-ready costs of \$32.9 million and customer side make-ready by \$62.9 million, illustrated in Appendix B, Table 1, column 3. By applying SCE's calculation in SCE Master Workpaper, Tab "CR2 Portfolio (Four Year)" Cell M14, the bottom row of Appendix B, Table 1 can be calculated as \$13,308 with the updated reductions in utility and customer side make-ready cost estimates. Section C describes a further reduction in costs, which results in a reduction of \$7.5 million in utility side and \$25.4 million in customer side make-ready infrastructure. Using the same methodology described above for the Section C reduction as Section B, Appendix B, Table 1 bottom row can be further updated to \$12,291 per port.

²² Taking the average cost across the studies and reports discussed, including the New York SERDA program, the Rocky Mountain Institute, the Electric Power Research Institute, the Department of Energy, SCE's proposed costs (assuming 1 port per EVSE), and the Public Advocates Office adjustments to \$12,291 gives an average per port cost of \$7,313. To be additionally conservative, the Public Advocates Office added an additional 10% contingency to yield a per port cost of \$8,050, or a reduction of \$4,240 from the \$12,291 number discussed above.

²³ Amended Pilot Report, p. 31.

²⁴ SCE Response to Public Advocate Office data request 2, Q6a. Public Advocate Office asks "On page 15 of SCE's opening testimony, SCE proposes a 2 port minimum for Charge Ready Phase 2. Please

1 Instead, to account for anticipated reduced average ports per site due to the introduction
2 of a 2-port minimum, SCE incorporates the methodology described below (2-Port
3 Methodology):²⁵

- 4 1) SCE categorizes sites in its Charge Ready Pilot based on the number of
5 ports at each site.
- 6 2) SCE finds the frequency of sites for each port size categorization.
- 7 3) SCE calculates the percentage of sites at each port size categorization.
- 8 4) SCE uses this percentage of sites for each port size categorization to
9 estimate the percentage of ports that will occur at each port site
10 categorization. For example, sites with only 4-6 ports make up 19% of
11 all sites in the Charge Ready Pilot.

12 SCE's methodology is in error because sites with only 4-6 ports only contribute to
13 7% of the total ports installed during the Charge Ready Pilot. SCE should use the 7%
14 value as it compares percent of ports in its Charge Ready Pilot to assumed -percent of
15 ports in Charge Ready 2, but instead elects to compare percent of sites in its Pilot (19%)
16 to percent of ports in Charge Ready 2.

describe why in SCE's workpapers in response to Public Advocates' DR 01 Q01, there are no cost estimates for sites with only 2-3 ports, despite 2 ports being SCE's proposed minimum" SCE's response states:

"SCE did not directly model the range of site costs for 2- to 3-port sites due to the unique nature of the installations. However, the average cost per site is estimated to be similar to the costs reflected in the 4- to 6-port sites detailed in SCE's workpapers. Consequently, the allowance of two- or three-port sites as a programmatic variable will be managed by SCE throughout the program based on total site cost, site growth potential and expected site learnings.

Just as other sites are bound by cost parameters to be eligible for the program, SCE would not install two- or three-port sites that were excessive in cost and did not meet the established cost parameters for the program. In addition to cost, sites would be evaluated on the future growth plans or potential at each site (i.e., a site that only needs two ports initially but has plans to increase number of ports later). Limited exceptions to the cost threshold parameter may also include sites that demonstrate novel charging models that SCE can gain useful learnings from or serve as a key new solution for customers (e.g., curbside charging where four or more ports may be too large to serve demand on a city block)."

²⁵ SCE's Charge Ready 2 Master Workpaper "Control Center" Rows 28-36.

Using SCE's 2-Port Methodology and using the results from the Charge Ready Pilot, the Public Advocates Office created Table 4 below to compare the two approaches.

**Table 4 - Comparison of Pilot % of Sites vs. % of Ports,
for Different Port Size Sizes**

Ports per Site	SCE Assumed Average Ports per Site ²⁶	% of Sites ²⁷	% of Ports
4-6	5	19%	7%
7-13	10	47%	34%
14-20	17	17%	21%
21-26	23.5	9%	15%
27-40	33.5	3%	7%

SCE's 2-Port Methodology effectively over weights the percent of sites with less ports (e.g. 4-6 ports per site making up 19% of ports rather than 7%), and under weights the percent of sites with greater ports (e.g. >40 ports per site making up 3% of ports rather than 7%). SCE does so to account for the effects a reduction in the ports per site minimum would have on the cost and necessary number of sites.²⁸

The difference in cost estimates using SCE's 2-Port Methodology and without using the 2-Port Methodology, is the effective cost of SCE's proposed port minimum reduction. Specifically, the cost of SCE's Charge Ready 2 Program using the 2-Port Methodology, less DCFCs,²⁹ is approximately \$746 million. If SCE's 2-Port Methodology is not used, SCE's program cost is reduced to \$649 million. SCE's

²⁶ See SCE Charge Ready 2 Master Workpaper "Control Center" Cells D60 to D65.

²⁷ SCE's Charge Ready 2 Master Workpaper "Control Center" Cells E30 to E35.

²⁸ SCE's workpaper note in SCE's Charge Ready 2 Master Workpaper "Control Center" Cell O51 states "Used site composition instead of port composition. Programmatic changes in CR2 (e.g., lower port minimum) render the port composition from CRPP unreasonable and may underestimate potential number of sites. Number of sites important for determin[i]ng labor needs to implement program." SCE does not explain elsewhere what other "programmatic changes", if any, would make SCE use this methodology.

²⁹ SCE's proposed DCFC installation number is based off assumed number of sites in the program. Removing of SCE's 2-Port Methodology reduces the number of sites in SCE's program, and thus also reduces the number of DCFCs in SCE's program. To separate the effects of SCE's minimum port reduction and the effects of DCFC assumptions, Public Advocates Office removed DCFCs entirely in this analysis.

proposed 2 port minimum per site increases SCE’s proposed program cost by approximately \$97 million.

Moreover, utility programs should maximize benefits and minimize costs, and the utilities should capitalize on economies of scale to mitigate ratepayer impact.³⁰ SCE’s proposal to reduce port minimum contravenes these ratepayer protections by significantly increasing program costs. For example, for its Assembly Bill (AB) 1082/1083³¹ pilots, SCE states that its “AB 1082 Pilot assumes an average of 6.2 ports per site with a maximum installation of 13 ports per site, while the Charge Ready Pilot installed an average of 14 ports per site with a maximum of 80 ports at a site. *Larger sites capture greater economies of scale and spread fixed costs over more ports, and therefore have a smaller cost per port.*”³² As shown in Table 5 below, this also holds true for SCE’s Charge Ready 2 Program.

Table 5 - Comparison of Per Port Costs for Different Site Sizes

Ports per Site	Cost per Site, Pre-Contingency & Labor ³³	SCE Assumed Average Ports per Site ³⁴	Cost per Port, Pre-Contingency & Labor
4-6	\$125,973	5	\$25,195
7-13	\$149,163	10	\$14,916
14-20	\$160,329	17	\$9,431
21-26	\$186,663	23.5	\$7,943
27-40	\$234,414	33.5	\$6,997
>40	\$409,547	40	\$10,239 ³⁵

³⁰ See Pub. Util. Code§ 740.12(b) (“Program proposed by electrical corporations shall seek to minimize overall costs and maximize overall benefits.”).

³¹ A.18-07-022.

³² SCE’s A.18-07-022 Reply to Protests fn. 17 at p. 6.

³³ SCE’s Charge Ready 2 Master Workpaper “Site Example Revised” Row 67.

³⁴ SCE Charge Ready 2 Master Workpaper “Control Center” Cells D60 to D65.

³⁵ Sites with >40 ports per site most likely are estimated to have a higher per port cost than sites with 27-40 ports due to a small sample size of >40 port sites in SCE’s Charge Ready Pilot.

1 SCE supports its proposed reduced port minimum on the claim that it would help
2 increase customer participation.³⁶ However, a budget increase of \$97 million to help
3 increase customer participation is unwarranted for at least three reasons. First, SCE's
4 pilot already garnered enough interest to be oversubscribed. Second, as stated above,
5 utility programs should minimize cost and maximize benefits. Here, that means SCE
6 should capture economies of scale. Third, and related to the economies of scale,
7 ratepayers should not fund all efforts for widespread TE, and their utilities should
8 mitigate the impacts of TE investment by using cost-cutting strategies. Utility programs
9 must balance the state's greenhouse gas (GHG) and TE goals with the impacts on
10 ratepayers. Therefore, the Commission should reject SCE's proposal to reduce port
11 minimum requirements to 2 ports per site.

12 Alternatively, if the Commission does not adopt the Public Advocates Office's
13 port minimum proposal, the Commission should adopt a program-wide minimum average
14 ports per site. For example, if the adopted average was 14 ports per site, SCE would be
15 allowed to install a two-port site for every two 20-port sites SCE installs (a two-port site
16 creates a "deficit" of 12 ports, whereas each 20-port site creates a "surplus" of 6 ports).
17 This would allow SCE to keep economies of scale while still allowing SCE flexibility to
18 install smaller port sites.

19 If the Commission adopts this alternate recommendation, it should set the program-
20 wide average ports per site equal to that of the Charge Ready Pilot which is 2-ports per
21 site. This would ensure comparable costs per installation. The Commission should also set
22 higher port per site requirement for non-DACs than for DACs. Otherwise, the average
23 port per site requirements may have the unintended effect of reducing DAC participation,
24 if SCE can find larger sites at non-DACs than at DACs.

³⁶ For example, SCE's Testimony Table II-3 on p. 15 states that SCE proposes a 2-port minimum in response to the "lessons learned" that a 10-port minimum was a challenge for some customers in non-DACs.

1 **C. SCE’s “Greater than 40 Ports per Site” Assumptions**
2 **Should Be Rejected and Should Assume 60 Ports Per Site.**

3 SCE determines the number of sites needed for its program by dividing its sites
4 into different categories by number of ports per site.³⁷ For the vehicle category that
5 incorporates sites with greater than 40 ports per site, SCE assumes these sites only
6 contribute 40 ports each.³⁸ This assumption is significant because by estimating that each
7 site can only accommodate a smaller number of ports than is determined by SCE, SCE
8 assumes a greater number of sites are necessary to install its proposed 31,791 make-ready
9 ports. SCE then feeds this erroneous assumption of number of sites estimate into its cost
10 estimates.

11 It is illogical for SCE to assume that these sites can only accommodate 40 ports
12 each, when, by definition, they actually have more than 40 ports. SCE’s workpapers
13 show four sites in the Charge Ready Pilot that had more than 40 ports each.³⁹ These four
14 sites average at least 63.5 ports per site.⁴⁰ The Public Advocates Office recommends
15 assuming that each of these sites with greater than 40 ports has 60 ports each, which is a
16 conservative estimate.

17 **D. SCE’s Budget Should Be Reduced By Any Authorized**
18 **Bridge Funding Amount.**

19 On March 5, 2018, SCE filed a Petition for Modification (PFM) for an additional
20 \$22 million for the Charge Ready Pilot. The PFM sought to provide “bridge funding” that
21 would allow SCE to continue its Pilot until the Charge Ready 2 Program begins.⁴¹ SCE
22 stated that “the approved bridge funding dollars will, in turn, reduce the budget the

³⁷ SCE Charge Ready 2 Master Workpaper “Control Center” Rows 50-74.

³⁸ SCE Charge Ready 2 Master Workpaper “Control Center” Cell D65.

³⁹ SCE Charge Ready 2 Master Workpaper “Control Center” Cell D35.

⁴⁰ In SCE’s response to Public Advocates Office data request 1, Q7, SCE indirectly provides data on the number of ports of three of these sites. These three sites in total have 213 ports. By definition, the fourth site that SCE did not provide data on has at least 41 ports, for a total of 254 ports over these 4 sites. 254/4 = 63.5 ports per site.

⁴¹ PFM, p. 1.

Commission approves for SCE’s Charge Ready 2.”⁴² The Commission concurred that bridge funding should be taken from funds authorized in SCE’s Charge Ready 2 Program in the Commission’s Proposed Decision.⁴³ The Commission should ensure that if it approves any portion or all of SCE’s proposed bridge funding, that these funds are subtracted from SCE’s Charge Ready 2 budget.⁴⁴

E. Rebates Should Be Set At The Same Percentages As SCE’s Charge Ready Pilot.

SCE’s \$760.1 million budget is calculated based on assuming all customers will receive a 100% rebate.⁴⁵ This is despite the Charge Ready Pilot providing rebates of only 50% to non-DAC MUDs, and 25% to all non-DAC non-residential customers.⁴⁶ SCE’s response in this regard was that the “exact participation by each customer segment in the program is unknown at this time. Because SCE proposes a 100% rebate for all customer segments and to manage the risk of budget overrun for an at-scale program, SCE assumed that all customers would receive the full rebate. To help manage the proposed program costs, the rebate is capped at \$2,000 (as described in SCE’s testimony on page 48). This cap is approximately equal to the average full rebate for customer selected stations in the Charge Ready Pilot.”⁴⁷

This rationale is unpersuasive. In D.16-01-023, the Commission specifically modified the Charge Ready Pilot to reduce rebates below the percentages recommended by Settling Parties in the Charge Ready Pilot Settlement Agreement.⁴⁸ The Commission

⁴² PFM, p. 2.

⁴³ OP 8.

⁴⁴ On November 15, 2018, a proposed decision in A.14-10-014 was issued granting SCE’s petition for modification. If adopted by the Commission, SCE would be authorized an additional \$22 million for its Phase 1 pilot. This amount would be reduced from SCE’s Phase 2 budget.

⁴⁵ SCE Charge Ready 2 Master Workpaper “Control Center” Rows 9 & 12.

⁴⁶ D.16-01-023 OP 3.

⁴⁷ SCE’s response to Public Advocates Office data request 2, Q7.

⁴⁸ The Settling Parties, as summarized in D.16-01-023 p. 10, recommended a 100% rebate for DACs and MUDs, 75% rebate for fleets, 50% rebate for workplaces, and 25% rebate for destination centers.

1 stated: “We find merit in ChargePoint’s claim that the site host take a more active role in
2 evaluating equipment and services and assessing site and user needs when a rebate covers
3 only a portion of the cost.”⁴⁹ The Commission further found a 25% rebate for non-DAC
4 and non-residential customers to be “a reasonable starting point because it will limit
5 ratepayer costs while still providing a significant upfront incentive.”⁵⁰

6 The Commission further stated that SCE should use the Charge Ready Pilot to
7 evaluate whether the adopted rebate levels of 100% for DACs, 50% for non-DAC MUDs,
8 and 25% for all other market segments are appropriate for Charge Ready 2.⁵¹ However,
9 SCE’s testimony does not state what challenges in program participation informed SCE
10 to increase rebate levels, notwithstanding that SCE has also failed to weigh perceived
11 benefits of increased rebates with increased burden on ratepayers. In fact, SCE’s
12 proposed 100% rebate sets rebate levels for non-residential market segments equal to that
13 for MUDs. This reverses the Commission’s attempts to set higher rebates for MUDs
14 relative to non-market segments in order to encourage MUDs to install EV charging
15 stations and purchase EVs.⁵² While increasing MUD rebates to 100% may increase
16 overall MUD participation, by no longer providing a MUD rebate advantage compared to
17 non-residential market segments, SCE’s proposal may result is low MUD participation as
18 a portion of the overall ports installed like in the Charge Ready Pilot.

19 The Commission also should make Fortune 1000 companies ineligible to qualify
20 for the DAC 100% rebates consistent with D.18-05-040. This recommendation is
21 consistent with the Commission adopted Pacific Gas and Electric Company’s (PG&E’s)
22 and SCE’s Medium and Heavy-Duty programs. The Commission made this

⁴⁹ D.16-01-023 p. 15.

⁵⁰ D.16-01-023 p. 16.

⁵¹ D.16-01-023 COL 6.

⁵² D.16-01-023 p. 16. “However, for MUDS we recognize the strong need and lack of existing charging infrastructure while at the same time acknowledging the public interest in avoiding 100% rebates. We therefore modify the Proposed Settlement to require a 50% charging station rebate for MUDs in non-Disadvantaged Communities, a greater incentive than that adopted for non-residential customer participants.”

determination because it was concerned over providing DAC rebates to customers located in DACs who are not financially disadvantaged.⁵³

F. Summary of the Public Advocates Office's Adjustment to Cost

The Public Advocates Office summarizes the effects of its recommendations on SCE's proposed budget below:

- The make-ready capital costs are adjusted based on the Public Advocates Office's recommendation to keep port minimum requirements the same as the Charge Ready Pilot (i.e. removal of SCE's "2-Port Methodology"). This increases the average size of SCE's sites and decreases the number of sites needed.
- The number of sites is reduced due to adjusting SCE's assumptions that sites with greater than 40 ports only provide 40 ports.
- SCE's rebate expenses are adjusted based on the authorized rebate percentages per customer class in the Charge Ready Pilot, rather than assuming a 100% rebate for all port installations.
- The capitalized and expensed portions of SCE's budget are adjusted based on Public Advocates Office's recommendation to deny SCE full utility ownership of 35% of MUD EVSEs.
- SCE's labor cost estimates are adjusted based on the reduction of number of site installations in several of Public Advocates Office's above recommendations. Moreover, labor cost estimates are adjusted based on Public Advocates Office's recommendation to deny SCE full utility ownership of 35% of MUD EVSEs.
- SCE's per port costs are adjusted based on the per port costs approved in other programs such as the NRG settlement and lessons learned from the Charge Ready Pilot.
- The ME&O budget is reduced to \$4.8 million, outlined further in Section P.

Table 6 below shows the adjusted budget based on Public Advocate Office's recommendations above.

⁵³ D.18-05-040 p. 95 "As TURN has pointed out in the past, the fact that a site is located in a disadvantaged community does not mean the commercial customer itself is financially disadvantaged."

Table 6 - Summary of Public Advocates Office's Adjustments to Cost.

Summary (in \$million)	Change in capital	Change in expense	Total Change
Port Minimum Requirement	-96	-2	-97
>40 Port Site Assumption	-33	0	-33
Rebate Levels	0	-26	-26
No Ownership	-16	-6	-22
Labor Adjustment	-6	-3	-8
Avg Cost Adjustment	-137	0	-137
ME&O Adjustment	0	-37	-37
Total	-287	-74	-361

With the above described adjustment, SCE's program budget would total \$399 million (\$287 million in capital and \$74 million in expense). This is a reduction of \$361 from SCE's proposed \$760 million. Table 7 illustrates the resulting adjustment in SCE's cost categories.

Table 7 - Public Advocates Office Proposed Cost Comparison.

Cost Category	SCE Proposed	Public Advocates Office Proposed
Utility Side Make-Ready	\$ 130,464,816	\$ 59,015,725
Customer Side Make-Ready	\$ 395,309,874	\$ 201,089,894
Ownership	\$ 16,156,339	\$ -
Cap. Non-Labor	\$ 2,057,500	\$ 2,057,500
Cap. Labor	\$ 16,952,980	\$ 11,388,144
O&M Non-Labor	\$ 550,000	\$ 550,000
O&M Labor	\$ 10,901,490	\$ 8,173,667
O&M Ownership	\$ 11,801,034	\$ -
Rebate L2	\$ 55,120,582	\$ 34,432,884
Rebate DCFC	\$ 5,539,326	\$ 3,692,439
New Construction Rebate	\$ 64,000,000	\$ 64,000,000
Marketing Non-Labor	\$ 9,742,000	\$ 9,742,000
ME&O	\$ 41,527,820	\$ 4,800,000
Capital Total	\$ 560,941,510	\$ 273,551,263
Expense Total	\$ 199,182,251	\$ 125,390,990
Total Program Cost	\$ 760,123,761	\$ 398,942,253

1 **G. SCE Should Prioritize DCFCs at Short Dwell Times Sites And at**
2 **Sites Accessible To MUDs.**

3 SCE's program proposes to target sites where vehicles are typically parked for two
4 hours or more.⁵⁴ This raises the concern whether sites with long dwell times would see
5 diminished benefits from DCFCs, compared to the higher cost of DCFC.⁵⁵ At sites with
6 long dwell times, vehicles may be sufficiently charged on an L2 charger, and the ability
7 of a DCFC to service more vehicles per day may be inhibited by vehicles that are already
8 fully charged but remain parked in the DCFC parking space.

9 For example, consider an EV that is parked for two hours, and that consumes
10 approximately a kilowatt-hour (kWh) per every 3 miles driven.⁵⁶ A 50 kilowatt (kW)
11 DCFC would provide charging for approximately 300 miles (50 kW*2 hours*3 miles per
12 kWh). In most cases, these 300 miles will exceed charging needs, as SCE's vehicle
13 assumptions assume that 74% of all light duty EVs will have a range of approximately
14 100 miles, or less during the duration of the program.⁵⁷ Moreover, the average American
15 only drives about 31.5 miles per day.⁵⁸ Charge for 31.5 miles would only take about 13
16 minutes (31.5 miles*(1kWh/3 miles)*60 minutes/hour (hr) / 50 kW = 13 minutes). Over
17 the course of a day, the DCFC has the potential to charge over a hundred EVs (24

⁵⁴ SCE Opening Testimony Table II-3 at p. 15.

⁵⁵ SCE's Charge Ready 2 Master Workpaper budgets \$7.7 million, less labor and contingency, or 205 DCFCs. This amounts to approximately \$37,000 per DCFC port. In addition, SCE proposes a rebate of \$27,000 per port. When factoring in labor and contingency, SCE's DCFCs are therefore on a factor of approximately 4-5 times more expensive per port than L2 ports.

⁵⁶

<https://www.fueleconomy.gov/feg/PowerSearch.do?action=noform&path=1&year1=2017&year2=2019&vtype=Electric&pageno=1&sortBy=Comb&tabView=0&rowLimit=100>

⁵⁷ SCE's response to Public Advocates Office data request 3, Q1 Attachment SCE TE Infrastructure Model assumes that by 2023 there will be 193,034 PHEV 20 (Plug-in Hybrid EVs with a battery range of approximately 20 miles), 198,408 PHEV 50 (approximately 50-mile range), 191,967 BEV 100 (Battery-only EV with an approximately 100 mile range), and 206,718 BEV 250 (approximately 250-mile range). Note that Public Advocates Office's example provides 300 miles of range, which is greater than even the highest BEV 250 category. However, because the BEV 250 is SCE's assumed highest range category, it may include vehicles with ranges significantly greater than 250 miles as well. For the sake of conservatism, Public Advocate Office assumes only BEV 100 and below would receive a full charge.

⁵⁸ AAA American Driving Survey, 2015-2016 https://aaafoundation.org/wp-content/uploads/2018/02/18-0019_AAAFTS-ADS-Research-Brief.pdf.

1 hours/day*60 minutes/hr /13 minutes per EV charge = 110 EVs); yet a DCFC at this site
2 would only be able to serve at most 12 vehicles per day due to the long dwell time (24
3 hours/day / 2 hours per vehicle = 12 vehicles). Therefore, to mitigate the effects of long
4 vehicle dwell times on DCFCs' potential benefits, SCE should prioritize installing
5 DCFCs at locations where there is potential for shorter dwell times.

6 In addition, the Commission's scoping memo asks: "What role do direct current
7 fast chargers play in serving multi-family dwelling residents?"⁵⁹ SCE does not size its
8 DCFC proposal based on service to MUDs. Rather, SCE sizes its DCFC proposal based
9 solely on the number of sites where SCE intends to install L2 chargers, and siting DCFCs
10 only at sites presumed to be large enough to be interested in DCFCs.⁶⁰ SCE should
11 develop a prioritization methodology for DCFC siting that considers, along with dwell
12 time of vehicles at the site, how the DCFC sites will benefit MUDs and encourage off-
13 peak charging.

14 Finally, SCE's Urban DCFC Cluster Pilot was recently approved in A.17-01-020
15 et al.⁶¹ The Commission concluded that "[i]f SCE's DCFC Clusters pilot performs as
16 expected, it will provide data useful for developing future TE markets."⁶² The
17 Commission also found that "SCE's DCFC Cluster Pilot will...measure whether or how
18 fast charging in urban areas encourage adoption of EVs."⁶³ SCE should apply lessons
19 learned from the Urban DCFC Cluster Pilot to ensure Charge Ready 2 DCFC deployment
20 are sited where benefits can be maximized and costs minimized.

⁵⁹ Scoping Memo, p.9.

⁶⁰ SCE's Charge Ready 2 Master Workpaper "Control Center" Rows 39 to 47. SCE uses percent of sites that employ 50 or more employees as a proxy for percent of sites it assumes would be interested in DCFCs. As stated in SCE's Opening Testimony p. 34 fn 73, "Sites with 50 or more employees used as a threshold to estimate sites that may be interested in DCFCs".

⁶¹ D.18-01-024.

⁶² D.18-05-040 Findings of Fact (FOF) 24.

⁶³ D.18-05-040 Conclusion of Law (COL) 12.

1 **H. SCE Should Establish Site Prioritization Criteria.**

2 SCE proposes to create a site prioritization methodology to expedite deployment
3 at high-priority sites. Example criteria used to classify sites may include customer
4 segment, expected number of EVs served, site costs, existing transformer capacity,
5 location in or near DACs, and public accessibility.⁶⁴ SCE has not developed a site
6 prioritization methodology and proposes to do so after approval of the program. SCE
7 would incorporate any modifications detailed in the final decision and collect input from
8 the TE Program Advisory Board (PAC).⁶⁵

9 At a minimum, SCE should include the above-mentioned site prioritization criteria
10 as well as ensuring charging installations are supporting new EV adoption as opposed to
11 serving only existing electric vehicles. The Commission should require SCE to file a tier
12 2 advice letter based on recommendations developed with the PAC. Developing
13 appropriate site prioritization criteria would better ensure sites are in public interest and
14 the program can minimize costs and maximize benefits.

15 **I. SCE’s New Construction Rebates Program Should Be**
16 **Approved.**

17 SCE proposes 16,000 rebates of up to \$4,000 per port to complete EV readiness of
18 newly constructed MUDs to support remaining infrastructure not included in the building
19 code as well as the EVSE itself.⁶⁶ This approach is a more efficient and cost-effective
20 approach to installing charging infrastructure than retrofitting existing sites through the
21 make-ready expansion program. Public Advocates Office recommends SCE’s proposed
22 new construction rebates program be approved.

⁶⁴ SCE Opening Testimony, p. 40.

⁶⁵ SCE Response to Public Advocate Office Data Request 2, Q11.

⁶⁶ SCE Opening Testimony p. 55-56.

1 **J. SCE Should Incorporate More Lessons Learned From The**
2 **Charge Ready Pilot.**

3 SCE lists a number of lessons learned from the Charge Ready Pilot, aside from
4 those addressed in other sections of this testimony, that should generally be included in
5 Charge Ready 2 implementation.⁶⁷ For example, SCE outlines the various stages of each
6 project, such as customer engagement and evaluation, pre-construction process,
7 construction, post-construction, and a special section on MUDs. In each of these stages,
8 SCE summarizes challenges encountered in the Charge Ready Pilot and potential
9 strategies to address those challenges through methods like site assessment, application
10 support, agreement and proof of deposit, procurement, feasible and cost effectiveness
11 ways to deploy charging stations and new construction sites, generic make-ready
12 footprint dimensions adaptable to multiple EVSEs, contract language, and codes and
13 documentation. To the extent the proposed solutions are cost-effective for ratepayers and
14 in best interests to the success of the program, SCE should implement these other lessons
15 learned solutions in Charge Ready 2.

16 Additionally, SCE should solicit unique technology solutions in Charge Ready 2
17 to provide additional savings and program effectiveness. SCE states that it “seeks to
18 balance the immediate need for increased charging infrastructure with measures to
19 promote customer choice and limit the risk of technology obsolescence.”⁶⁸ Public
20 Advocates Office supports flexibility to accommodate emerging technologies into the
21 program as long as these technological changes do not increase SCE’s overall program
22 costs.

23 **K. SCE Should Consult With Community-Based**
24 **Organizations or Other Groups Representing Customers**
25 **In DACs To Identify Destination Center Locations.**

26 During the Charge Ready Pilot, SCE installed EVSEs in sites located at
27 workplaces, sites for fleet charging, sites located at MUDs, and sites located at

⁶⁷ Amended Pilot Report, pp. 16-21.

⁶⁸ SCE Opening Testimony, p. 60-61.

1 destination centers.⁶⁹ SCE provided July 2018 EVSE utilization data for each of these
2 sites for the Charge Ready Pilot participants, differentiating between sites installed in
3 DACs and non-DACs, and differentiating between sites installed in destination centers,
4 MUDs, workplaces, and for fleets.⁷⁰

5 The data shows that of the four site types, destination centers have the lowest per
6 port utilization rates. With the expanded scale of Charge Ready 2, if this trend of low
7 utilization continues for destination centers, it would diminish ratepayer benefits. These
8 ratepayer benefits, like reduced emissions of GHGs and other air pollutants⁷¹ and reduced
9 electricity rates,⁷² increase with the every gasoline-powered vehicle-mile that is replaced
10 with an electric vehicle-mile.⁷³ Increasing the utilization of each port helps maximize the
11 benefits ratepayers receive per dollar spent by increasing the kWh supplied to electric
12 vehicles without the need to install an additional charging station.⁷⁴ To increase the
13 utilization of these sites and, therefore, bring more benefits to ratepayers (such as reduced
14 emissions of GHGs and other air pollutants and reduced electricity rates) per EVSE port,
15 SCE must ensure that the EVSEs are placed in the locations that are most in need.

16 Since an effort to determine the best locations for EVSEs at a program-wide level
17 may increase costs, the Public Advocates Office recommends focusing SCE's site
18 location planning efforts on destination centers located in DACs. The Public Advocates
19 Office recommends the focus on DACs because EVSEs in DACs represent a larger

⁶⁹ *Prepared Testimony in Support of Southern California Edison Company's Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs* (SCE Opening Testimony), p. A-9.

⁷⁰ SCE Response to Public Advocate Office data request 1, Q7a – CONFIDENTIAL; see Attachment 2.

⁷¹ SCE Testimony, p. 23.

⁷² SCE Testimony, p. 22.

⁷³ See SCE's Avoided Greenhouse Gases Estimation Methodology, SCE Testimony, p. A-31.

⁷⁴ For example, for illustrative purposes a theoretical kWh has a benefit of 2 grams (g) of GHG emission reduction and a 2 cent electricity rate decrease. If a port has a cost of \$100 and a daily usage of 50kWh, ratepayers receive a daily benefit of 1g of GHG emission reduction per dollar and a 1 cent electricity rate decrease per dollar ($50\text{kWh}/\$100 = 0.5\text{kWh}/\$, 0.5\text{kWh}/\$ * 2\text{benefit/kWh} = 1\text{benefit}/\$$). However, if usage increases to 100kWh, ratepayers now receive a daily benefit of 2g of GHG emission reduction per dollar and a 2 cent electricity rate decrease per dollar ($100\text{kWh}/\$100 = 1\text{kWh}/\$, 1\text{kWh}/\$ * 2\text{benefit/kWh} = 2\text{benefit}/\$$).

1 investment due to the Public Advocates Office’s recommendation of 100 percent rebates
2 for DACs.⁷⁵ Furthermore, ensuring that the EVSEs are placed in the locations with high
3 demand may lead to an installation of a larger amount of ports per site than is required.
4 As SCE states in its Charge Ready Phase 1 Program Pilot Report, “sites with fewer
5 charge ports [are] more expensive per port.”⁷⁶ Conversely, increasing the ports per site
6 will decrease the cost of each port.⁷⁷

7 The Public Advocates Office recommends that before program implementation,
8 SCE consult with community-based organizations, or other groups representing
9 customers in DACs, to determine the destination center locations where EVSEs are most
10 needed and likely to have high utilization. These meetings should guide the areas that
11 SCE targets for EVSE installations as part of its proposed site prioritization
12 methodology.⁷⁸ The results of SCE’s meetings with these community-based organizations
13 should be included in the site prioritization PAC discussions and the subsequent Tier 2
14 advice letter containing the site prioritization recommendations.

15 **L. MUDs Installations Should Target MUD Residents And Be**
16 **Publicly Accessible.**

17 During the Charge Ready Pilot, EVSEs in MUDs, like destination centers,
18 experienced low levels of per port utilization compared to workplace and fleet sites.⁷⁹
19 Similar to its concern with destination center sites, the Public Advocates Office is
20 concerned that with the expanded scale of Charge Ready 2, this trend of low utilization
21 may continue for MUDs and diminishes ratepayer benefits. As outlined in Section K,
22 these ratepayer benefits, like reduced emissions of GHGs and other air pollutants and

⁷⁵ See Alan Bach’s Testimony section E.

⁷⁶ SCE Opening Testimony, p. A-36.

⁷⁷ For example, a theoretical site with 5 ports and site assessment and design costs of \$100 will cost \$20 per port ($\$100/5 \text{ ports} = \20 per port). Decrease the port number to 2, and the cost per port jumps up to \$50 ($\$100/2 \text{ ports} = \50 per port). Increase the port number to 10, and the cost per port drops to \$10 ($\$100/10 \text{ ports} = \10 per port).

⁷⁸ SCE Opening Testimony, p. 40.

⁷⁹ SCE Response to Public Advocate Office data request 1, Q7a – CONFIDENTIAL; see Attachment 2.

1 reduced electricity rates, increase with every gasoline-powered vehicle-mile that is
2 replaced with an electric vehicle-mile. Increasing the utilization of each port helps
3 maximize the benefits ratepayers receive per dollar spent by increasing the kWh supplied
4 to electric vehicles without the need to install an additional charging station.⁸⁰

5 Furthermore, under the Public Advocates Office’s recommendation of 100 percent
6 rebates for MUDs in DACs and 50 percent rebates for non-DAC MUDs, EVSEs in MUD
7 represent a larger investment than SCE’s proposal.⁸¹ However, the approach of site
8 location planning may not be as appropriate for MUD sites since MUD sites must be
9 located at or near MUDs to provide MUD residents with reliable access to EV charging
10 infrastructure. For the foregoing reasons, improving the benefits to ratepayers (such as
11 reduced emissions of GHGs and other air pollutants and reduced electricity rates) per
12 EVSE port at MUD sites requires a balance of achieving high per-port utilization while
13 still providing MUD residents with reliable access to charging.

14 EVSE sites located at MUDs should be easily accessible to MUD residents with
15 the condition that the EVSEs be made publicly accessible during certain hours of the day
16 that are consistent throughout each week. Specifically, the Public Advocates Office
17 recommends that MUD EVSE sites be publicly available during times that typically have
18 renewable curtailment due to high renewable penetration in the grid. This is
19 approximately from 9 am to 5 pm, on average.⁸² Not only does this help increase the per-
20 port utilization of these sites, but it also helps the grid by avoiding large system-wide
21 ramping and alleviating daytime overgeneration problems,⁸³ and it can help incent MUD
22 owners by adding another revenue stream through which the owner can recover the costs
23 of the EVSEs and potentially make a profit.

⁸⁰ See Fidel Leon Diaz’s Testimony section K.

⁸¹ See Alan Bach’s Testimony section E.

⁸² California ISO Wind and Solar Curtailment June 30, 2018 Report, p. 3.

⁸³ *Clean vehicles as an enabler for a cleaner electricity grid*, Jonathan Coignard et al. 2018 Environ. Res. Lett. 13 054031, p. 4.

1 Accessibility of these sites rideshare drivers could also dramatically increase
2 utilization rates, since rideshare drivers typically have significantly higher vehicle miles
3 traveled than non-rideshare drivers.⁸⁴ Lyft and Uber each introduced policies this year to
4 increase EV adoption. Uber is operating a few pilot programs to encourage hybrid and
5 EV adoption in select cities worldwide,⁸⁵ while Lyft plans to offset all of their vehicle
6 emissions and work to promote EV adoption among their drivers.⁸⁶ However, both Lyft
7 and Uber claimed during Commissioner Peterman’s August meeting⁸⁷ that many of their
8 drivers are low-income and live in MUDs. The companies explained that they believed
9 increasing access to chargers in public spaces and at MUDs could help incentivize their
10 drivers to switch to EVs. While the Public Advocates Office has not independently
11 verified these statements, it recognizes the need to increase EV access across all income
12 levels and residents of California.

13 Furthermore, this timing does not conflict with typical charging behavior at
14 MUDs, which occurs between 4pm to 4am, on average,⁸⁸ so MUD residents should
15 largely remain unaffected by these sites being publicly available. One way to implement
16 this is to allow parking lots adjacent to MUD properties to be eligible for the program if
17 they can serve the MUD residents. These parking lots can be open to the public, while the
18 use of EVSEs can be restricted to only MUD residents from 4pm to 9am. This approach
19 may not only helps increase the utilization of these chargers, but also incorporates SCE’s
20 recommendation to its “lessons learned” that (1) it is difficult for MUD property owners
21 or managers to allocate sections of parking stalls for charging station installations and (2)
22 MUDs with parking structures faced challenges in meeting current state accessibility
23 requirements.⁸⁹

⁸⁴ TNCs Today: A Profile of San Francisco Transportation Network Company Activity. June, 2017. p. 5

⁸⁵ <https://www.uber.com/newsroom/electrifying-our-network/>.

⁸⁶ <https://blog.lyft.com/posts/2017/6/14/lyft-climate-impact-goals>.

⁸⁷ Uber and Lyft comments the August 24, 2018 all-stakeholder meeting regarding a TE framework.

⁸⁸ Charge Ready Pilot Program Q2/2018 Report (“Charge Ready Quarterly Report”), Figure 4.4, p. A-22.

⁸⁹ SCE recommended “Allowing parking lots adjacent to the MUD property to be eligible for the program

1 **M. The Commission Should Not Authorize SCE To Own**
2 **EVSEs At MUDs Or Government Entity Locations.**

3 Utility ownership of EVSE in MUDs and government entity locations is
4 unnecessary and raises the total costs of the program significantly with no offsetting
5 benefits to ratepayers. In D.16-01-045 and D.16-01-023, the Commission approved
6 EVSE installation projects for San Diego Gas & Electric Company (SDG&E) and SCE,
7 respectively. For each program, the Commission approved a different ownership
8 structure: utility-ownership, where the utility buys and maintains the EVSE; and
9 customer-ownership, where the customer buys and maintains the EVSE. Tables 8-9
10 below summarize the first five operational quarters²⁰ of each program.²¹

if they can serve those MUD residents” in response to these “lessons learned”, SCE Opening Testimony, p. A-20.

²⁰ The timeframe of five operational quarters was chosen because it is the longest period for which there is common data between the two utilities’ programs. SCE’s first site was operational in February of 2017 and its latest quarterly report covers the program through Q2 2018. Meanwhile, SDG&E’s program’s first site was operational in May of 2017 and its latest quarterly report covers the program through Q3 2018. This is the limiting factor between the two utilities, which is roughly equal to five operational quarters.

²¹ The Commission also approved a customer-choice ownership structure, where the customer can choose either utility- or customer-ownership, in D.16-12-065. However, PG&E, the utility for which the program was approved, only has workable data for two operational quarters, a time period too short to allow for an adequate comparison to the other two programs.

Table 8 - Performance of Customer- and Utility-Ownership, Summary

	Ownership Structure	EVSE/Sites/Ports	Budget	DACs	MUDs
SDG&E	Utility-Ownership	238% of annual goal	212% of annual budget	32%	39%
SCE	Customer-Ownership	127% of annual goal	79.5% of annual budget	47%	3%

Table 9 - Performance of SDG&E's Utility-Ownership versus SCE's Customer-Ownership Programs

Utility:	San Diego Gas & Electric Company		Southern California Edison Company	
Ownership Structure:	Utility Ownership ⁹²		Customer-ownership ⁹³	
First Site Operational:	May 2017 ⁹⁴		February 2017 ⁹⁵	
	Target	Through Q3 2018	Target	Through Q2 2018
EVSE/Sites/Ports:	300 sites or 3000 charging	238 sites contracted ⁹⁷	1000 ports for 1 year ⁹⁸	1266 ports contracted ⁹⁹ or

⁹² D.16-01-045, p. 3.

⁹³ D.16-01-023, p. 5.

⁹⁴ CPUC IOU Infrastructure Programs Graphic, accessed June 26, 2018. (<http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442454831>).

⁹⁵ CPUC IOU Infrastructure Programs Graphic, accessed June 26, 2018. (<http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442454831>).

⁹⁷ Electric Vehicle-Grid Integration Pilot Program (Power Your Drive) Semi-Annual Report of San Diego Gas & Electric Company (U902-E) September 2018 ("PYD Semi-Annual Report"), p. 2.

⁹⁸ D.16-01-023, p. 60.

⁹⁹ Charge Ready Quarterly Report, p. A-7.

Utility:	San Diego Gas & Electric Company	Southern California Edison Company		
	stations for 3 years ⁹⁶ (100 sites or 1000 stations/yr)	or 238% of annual goal		127% of annual goal
Budget:	\$45M for 3 years ¹⁰⁰ (\$15M/year)	\$31.8M ¹⁰¹ or 212% of annual budget	\$22M for 1 year ¹⁰²	\$17.5M ¹⁰³ or 79.5% of annual budget
DAC:	10% ¹⁰⁴	32% ¹⁰⁵	10% ¹⁰⁶	47% ¹⁰⁷
MUD:	50% ¹⁰⁸	39% ¹⁰⁹	None ¹¹⁰	3% ¹¹¹

Using the information summarized in Tables 8 through 9 above, the success of the different ownership structures can be compared. Through their first five quarters of operation, the program with customer-ownership structure proved it can be just as successful as programs with a utility-ownership structure: utility-ownership and customer-ownership programs both contracted over 100% of their annual goal of

⁹⁶ D.16-01-045, p. 181.

¹⁰⁰ D.16-01-045, p. 3.

¹⁰¹ PYD Semi-Annual Report, p. 16.

¹⁰² D.16-01-023, p. 59.

¹⁰³ Charge Ready Quarterly Report, p. A-8.

¹⁰⁴ D.16-01-045, Attachment 2: Alternative VGI Program Terms, p. 8.

¹⁰⁵ PYD Semi-Annual Report, p. 2.

¹⁰⁶ D.16-01-023, p. 39.

¹⁰⁷ Charge Ready Quarterly Report, p. A-7.

¹⁰⁸ D.16-01-045, Attachment 2: Alternative VGI Program Terms, p. 4.

¹⁰⁹ PYD Semi-Annual Report, p. 2.

¹¹⁰ There is no target or goal for MUD deployment outlined in D.16-01-023.

¹¹¹ Charge Ready Quarterly Report, p. A-10.

1 EVSE/ports, utilized significant portions of their annual budget, and have had a
2 participation of over 30% by DACs.

3 When comparing the rate of expenditures to the rate of installations, the Public
4 Advocates Office observed the ratio of the percent annual installation goal to the percent
5 annual budget goal to view these programs on more even ground. SCE's ratio of 1.6¹¹²
6 (with customer-ownership) is similar, but superior to, SDG&E's 1.1 (with utility-
7 ownership).¹¹³ This disparity in the ratios shows that SCE, with a customer-ownership
8 program, has been able to make more installations per dollar spent than SDG&E.
9 Therefore, SDG&E's ownership structure did not improve its program compared to
10 SCE's program.

11 SCE's Charge Ready Pilot has a MUD enrollment of 3% compared to 39% in
12 SDG&E's Power Your Drive Program. SCE states that utility-ownership, like that of
13 SDG&E's, will provide a turnkey option that will help achieve high MUD adoption.¹¹⁴
14 SCE also lists many reasons that MUD have been challenging to enroll in its program:¹¹⁵
15 low prioritization of charging stations; lack of, or unknown utilization rate; lack of
16 customer interest; lack of interest from MUD owners to pay for upgrades; hesitancy from
17 MUD owners to invest in a subset of residents;¹¹⁶ parking limitations; desire by large
18 MUD complexes to distribute charging station throughout the property instead of in
19 single, defined areas; requirement to update parking areas to current codes; and space
20 constraints.

21 Only a few of the reasons that SCE lists could be addressed with utility-ownership.
22 Most of the reasons can be better addressed by marketing, education and outreach
23 (ME&O) and by allowing the EVSEs to be publicly accessible. Furthermore, (1)

¹¹² 127% of annual installations goal divided by 79.5% of the annual budget goal yields a ratio of 1.6.

¹¹³ 238% of annual installations goal divided by 212% of the annual budget goal yields a ratio of 1.1.

¹¹⁴ SCE Opening Testimony, p. 51.

¹¹⁵ SCE Opening Testimony, pp. A-20, A-21, Figure 2.22, A-34, 51.

¹¹⁶ SCE Opening Testimony, p. 51.

1 SDG&E's Power Your Drive was directed by the Commission to "strive to deploy
2 approximately 50% of all installations at MUDs",¹¹⁷ whereas the Charge Ready Pilot has
3 no such direction, and (2) SDG&E's program only targets workplace and MUD
4 charging,¹¹⁸ whereas SCE's pilot targeted fleet charging and public charging in addition
5 to workplace and MUD charging.¹¹⁹ Not only was SDG&E required to target a high
6 amount of MUD sites, its only other sites were workplaces. Therefore, it is reasonable to
7 expect that SDG&E would have higher enrollment of MUDs.

8 SCE states that it will limit its ownership in MUDs to 35% of all MUD sites.¹²⁰
9 When asked what percentage of its MUD population resides in a DAC, SCE clarified that
10 "of SCE residential customers that live in a MUD, 29% live in a DAC,"¹²¹ Furthermore,
11 the Public Advocates Office recommends a rebate level for DACs of 100%.¹²² This
12 means that, under the Public Advocates Office's recommendation, 29% of MUDs would
13 be eligible for a 100% EVSE rebate, given that SCE's deployment is proportional to its
14 customer shares. Not only does the Public Advocates Office's recommendation target a
15 similar share of MUD customers to what SCE's proposal targets with its ownership
16 structure, but it also targets the share of customers that are arguably most in need: MUDs
17 located in DACs. Under the Public Advocates Office's recommendation, all MUDs not
18 located in a DAC are still eligible for rebates; albeit at a lower, 50% rebate level. Overall,
19 the Public Advocates Office's recommendation imposes lower costs to ratepayers for the
20 same added benefit.

¹¹⁷ D.16-01-045, Attachment 2: Alternative VGI Program Terms, p. 4.

¹¹⁸ D.16-01-045, Attachment 2: Alternative VGI Program Terms, p. 4.

¹¹⁹ *Motion for Approval of Phase 1 Settlement Agreement Between and Among Southern California Edison Company (U 338-E), American Honda Motor Co., Inc., Coalition of California Utility Employees, Environmental Defense Fund, General Motors, LLC, Greenlining Institute, Natural Resource Defense Council, NRG Energy, Inc., The Office of Ratepayer Advocates, Plug In America, Sierra Club, The Utility Reform Network, and Vote Solar (Phase 1 Settlement)*, p. 8.

¹²⁰ SCE Opening Testimony, p. 31.

¹²¹ SCE Response to Public Advocate Office data request 5, Q1.

¹²² See Alan Bach's Testimony section E.

1 SCE also proposes to own EVSEs placed in governmental entity locations.¹²³ SCE
2 states that governmental locations required a long lead-time for charging station
3 procurement, and that SCE plans to offer utility ownership to these locations to overcome
4 their unique challenges.¹²⁴ However, this is unnecessary since SCE is proposing a much
5 longer program of 4 years, as opposed to the 1 year pilot during which governmental
6 entity locations had this issue. A program of this length should provide these locations
7 sufficient time to obtain the proper approval and permits for EVSE installations, without
8 the need to resort to the more costly utility ownership option.

9 While the type of ownership structure generally does not affect program
10 effectiveness, it does affect the final costs of the EVSEs and who bears the costs. Under
11 customer-ownership, the customer who owns the EVSEs is responsible for its cost,
12 though in some scenarios they have been aided by rebates. Alternatively, under utility-
13 ownership, the utility owns and covers the entire cost of the EVSEs, to be paid by
14 ratepayers in rates. While the utility still recovers the cost of the partial rebates, which is
15 distributed to all its electricity customers, it is not allowed to earn a return on the
16 rebates.¹²⁵ This means that the customer owning the EVSEs covers most of the costs and
17 is sometimes aided by the rest of the customers in the utility's service area. Furthermore,
18 if the utility owns the EVSEs it can pass down the full cost to its customers and in
19 addition, earn a rate of return. This means that the customers in the utility's service area
20 all pay for the full cost of the EVSEs and for the utility's profit. Therefore, the utility-
21 ownership structure leads to higher costs for ratepayers than the customer-ownership
22 structure. In D.16-12-065, where PG&E proposed utility ownership, the Commission
23 placed "limits on ownership as a means to avoid anticompetitive market impacts."¹²⁶

¹²³ SCE Opening Testimony, p. 50.

¹²⁴ SCE Opening Testimony, p. 51.

¹²⁵ D.16-01-023, p. 53, Ordering Paragraph 16.

¹²⁶ D.16-12-065, p. 37.

1 In A.17-01-022 and A.17-01-021, respectively, PG&E and SCE proposed only
2 make-ready models for their MD/HD programs, indicating that both PG&E and SCE did
3 not deem utility ownership necessary for a successful program or to adequately
4 incentivize the utility to implement a successful program. In the decision on those
5 applications, the Commission found that SCE's and PG&E's programs, which proposed
6 customer-ownership ownership structures, "do not allow unfair competition with non-
7 utility enterprises for the provision of electrical charging equipment."¹²⁷ Therefore, the
8 concern of anticompetitive market impacts, like unfair competition, that is presented by
9 utility-ownership is alleviated and eliminated by the customer-ownership ownership
10 structure.

11 As noted above, customer-ownership programs have proven to be just as
12 successful as utility-ownership programs. However, compared to utility-ownership,
13 customer-ownership reduces the financial burden on ratepayers and eliminates the
14 concern of anticompetitive market impacts. Additionally, SCE's problems with enrolling
15 MUDs are not addressed by its proposal for utility-ownership. For these reasons, the
16 Public Advocates Office recommends that the commission reject SCE's utility-ownership
17 proposal and instead allow SCE's program to utilize a customer-ownership structure and
18 require that these sites be publicly accessible from 9am to 4pm.

19 **N. Alternatives To Utility Ownership Should Be Explored.**

20 The Commission determines on a case-by-case basis the appropriateness of utility-
21 ownership. However, across all the proceedings related to TE, specifically those
22 pertaining to the installation of EVSEs,¹²⁸ few alternatives to utility-ownership of EVSEs
23 have been presented. Currently, the main alternative to utility-ownership is customer-
24 ownership or customer-choice (where the customer is given the choice of utility-
25 ownership). While these alternatives help mitigate the high cost to ratepayers and have

¹²⁷ D.18-05-040, p. 98.

¹²⁸ This includes proceedings A.14-04-014, A.14-10-014, A.15-02-009, A.17-01-020, A.17-01-021, A.17-01-022, A.17-01-031, A.17-01-033, A.17-01-034, A.18-01-012, A.18-06-015, A.18-07-020, A.18-07-021, A.18-07-022, A.18-07-023, and A.18-07-025.

1 been tested in TE pilots and programs with positive results,¹²⁹ other alternatives, with
2 potentially greater cost savings, have not been tested.

3 For example, in A.17-01-020 et al., TURN, Clean Energy Works, the Union of
4 Concerned Scientists, and The Greenlining Institute proposed a tariffed on-bill financing
5 project for transit agency electric bus batteries and charging stations.¹³⁰ This alternative,
6 also known as “Pay As You Save” (PAYS) or “inclusive financing,” entails the
7 following:¹³¹

- 8 • The utility establishes a tariff for investing in EVSEs in its
9 service area.
- 10 • The customer opts into the tariff that allows the utility to:
 - 11 - Put a charge on the customer’s monthly bill that is capped at a
12 level below the estimated fuel cost savings
 - 13 - Recover its costs within the warranty period of the equipment
14 it has financed.
- 15 • If the equipment is maintained according to its warranty, the
16 utility can call on the warranty to address upgrades or repairs.

17
18 This framework not only reduces the costs to ratepayers by keeping the cost of
19 EVSEs out of rate base, but it also reduces customers’ up-front cost of EVSEs and
20 allocates this cost directly to those that are benefitting from the EVSEs. While this
21 approach may not be appropriate for certain sectors due to the complexity of accounting
22 for costs and estimated fuel cost savings for a variable set of customers, this approach
23 could be leveraged for EVSEs dedicated to specific groups of customers. Transit agencies
24 and MUDs are good examples of where this type of financing could be successful.

¹²⁹ See Fidel Leon Diaz’s Testimony, Section M.

¹³⁰ *Opening Brief of The Utility Reform Network on the Priority Review Transportation Electrification Proposals from San Diego Gas & Electric, Southern California Edison, and Pacific Gas and Electric* (TURN PRP Opening Brief), p. 36.

¹³¹ *Opening Brief of The Greenlining Institute on the priority Review Transportation Electrification Proposals from San Diego Gas & Electric, Southern California Edison, and Pacific Gas and Electric* (Greenlining PRP Opening Brief), Attachment B.

1 On-bill financing has already been approved by the Commission for energy
2 efficiency,¹³² but has not been tested for TE. The Public Advocates Office recommends
3 that SCE, and the other California utilities in their respective applications, be more
4 creative with low-cost options to ratepayers and work with the Commission and other
5 stakeholders to explore options for on-bill financing (and other possible alternatives to
6 utility-ownership) for MUDs and transit agencies.

7 **O. Customers Should Maintain The EVSE For 10 Years.**

8 SCE proposes that participating Charge Ready 2 customers be required to
9 maintain the charging station operability and communication functionality for 5 years
10 after installation.¹³³ To ensure long-term commitment and to align with a more realistic
11 lifetime of this equipment, site hosts should be required to maintain the EVSE for 10
12 years.

13 The useful life for EVSE is typically cited to be at least 10 years, according to
14 multiple sources including the United States Department of Energy, with the potential for
15 systems to last much longer with consistent maintenance.¹³⁴ ¹³⁵ Moreover, this
16 recommendation is consistent with other EV program eligibility criteria. For example, the
17 Commission issued a requirement for PG&E and SCE to ensure participants maintain and
18 operate their purchased EVSE for at least 10 years in D.18-05-040.¹³⁶ Additionally, the
19 Commission adopted a 10 year maintenance requirement for Bear Valley's TE
20 program.¹³⁷ SCE's 5-year requirement creates a risk of stranded assets where
21 infrastructure is constructed for site hosts who are not committed to keeping the EVSE

¹³² D.13-09-044.

¹³³ *SCE Opening Testimony*, p. 43.

¹³⁴ [U.S. Department of Energy, Costs Associated with Electric Vehicle Supply Equipment. \(November 2015\).](#)

¹³⁵ <https://phev.ucdavis.edu/wp-content/uploads/2017/05/2016-UCD-ITS-WP-16-04.pdf>

¹³⁶ D.18-05-040, Ordering Paragraph 42, p. 161.

¹³⁷ D.18-09-034.

operating for its useful life. For these reasons, a 10-year commitment for site hosts to maintain the EVSE is a more appropriate criterion.

P. The Budget For The ME&O Program Should Be Reduced to \$4.8 Million.

SCE proposes to include a significant ME&O component to Charge Ready 2, totaling \$41.5 million¹³⁸ and including tools such as business-specific services (“TE Advisory Services”),¹³⁹ residential customer outreach, and an overall media campaign. SCE’s proposed budget should be reduced because SCE does not adequately demonstrate that the ME&O program leverages lessons learned from the Charge Ready Pilot and non-ratepayer funds, or that the program is tailored to incent EV adoption.

A key finding from the Charge Ready Pilot is that there is a lack of widespread awareness about the basics of EVs, (e.g., the benefits of ownership, how EV chargers and EVs, etc.).^{140, 141} Although SCE provided a variety of online tools to increase customer awareness about EVs and the benefits of EV ownership in the Charge Ready Pilot,¹⁴² it “later found direct engagement and interactions to be more effective in educating customers”, particularly in the case of MUDs.¹⁴³ SCE further found that direct engagement and interactions¹⁴⁴ may provide the necessary information to overcome barriers to EV adoption in MUDs because property owners and managers “may not have

¹³⁸ SCE Opening Testimony, p. 73.

¹³⁹ SCE Opening Testimony, p. 68.

¹⁴⁰ SCE Opening Testimony, p. 58

¹⁴¹ SCE Opening Testimony, p. 58

¹⁴² SCE Opening Testimony, pp. 59-60.

¹⁴³ See Amended Pilot Report, p. 34; see also id. at p. 8 (“The initial response to TE Advisory Services also confirmed a business customer interest for more technical assistance from a trusted energy advisor to help navigate the complexities of adopting and deploying TE technologies.”). Business customers here include workplaces, MUDs, Fleets and destination centers.

¹⁴⁴ SCE states “direct engagement” included “SCE account Managers individually reach[ing] out to a list of MUD customers that had been screened as potential Charge Ready [Pilot] participants.” Amended Pilot Report, p. 34. Direct engagement also appears to include “direct interactions” (e.g., phone, mail, and in-person meetings). Id.

1 the time or motivation to gain an understanding of a new and potentially confusing
2 market.”¹⁴⁵

3 Although SCE provided a list of possible tools to address Customer Education and
4 EV Awareness in its testimony, SCE does not explain how it plans to implement those
5 tools in a more targeted way that would leverage the finding that direct engagement is
6 effective. Targeted ME&O is not only important for effective customer education, it is
7 also consistent with D.11-07-029, which limited the utilities role in education and
8 outreach “to consumers with a demonstrated interest in Electric Vehicles,”¹⁴⁶ not mass
9 marketing.¹⁴⁷ Moreover, although SCE identifies the need to work with community-based
10 partners to implement the program,¹⁴⁸ it does not indicate whether the partners would
11 provide the one-on-one conversations SCE found to be more effective to educate
12 customers to promote EV adoption.

13 In addition, SCE has not demonstrated the need to invest the full amount of
14 proposed funds to target ME&O efforts to workplaces and destination centers. The
15 Charge Ready Pilot program was oversubscribed and has an application waitlist,¹⁴⁹ with
16 the majority of installations in workplaces and destination centers.¹⁵⁰ This demonstrates
17 high demand for the program at these location types and may indicate future interest in
18 the Charge Ready 2. Considering the high participation rates among workplaces and
19 destination centers, SCE should not be authorized funding to target these customers
20 outside of the proposed ME&O TE Advisory Services, which would offer these
21 customers the more effective direct engagement strategy.¹⁵¹

¹⁴⁵ SCE Opening Testimony, p. 65.

¹⁴⁶ CPUC D.11.07.029, p. 65.

¹⁴⁷ CPUC D.11.07.029, p. 65.

¹⁴⁸ SCE Opening Testimony, p. 64.

¹⁴⁹ Amended Pilot Report, p. 17.

¹⁵⁰ In DACs, 415/535 ports were installed in Workplaces, and in Non-DACs, 263/531 ports were installed in Workplaces. In Destination Centers, 80/535 ports were installed in DACs and 166/531 ports were installed in non-DACs, Amended Pilot Report, p. 42.

¹⁵¹ Amended Pilot Report, p. 42.

1 SCE presents a robust plan for engaging with business customers through their TE
2 Advisory Services program that in addition to general marketing includes tools such as
3 direct interactions, grant-writing¹⁵², hand-on experiences¹⁵³. While SCE initially states
4 that TE Advisory Services would only cover business customers, it defines business
5 customers to include workplaces, MUDs, fleets and destination centers,¹⁵⁴ which are the
6 only four categories listed for the entire Charge Ready 2 application.¹⁵⁵ This implies that
7 the TE Advisory Services category already includes the entire targeted customer base for
8 the Charge Ready 2 Program. The TE Advisory Services category in the Charge Ready
9 Pilot demonstrated success which SCE built upon in developing the Charge Ready 2
10 Program.

11 For example, SCE developed and will retain a TE Advisory Board that includes
12 stakeholders and Pilot customers to leverage their expertise in the program.¹⁵⁶ The Board
13 meets quarterly¹⁵⁷ and SCE intends to seek their input to continuously improve the
14 program.¹⁵⁸ Additionally, in the Charge Ready Pilot SCE identified through their TE
15 Advisory Services Program that many customers require additional assistance to navigate
16 the switch to electric vehicles,¹⁵⁹ which SCE plans to offer through grant-writing and

¹⁵² SCE Opening Testimony, p. 69.

¹⁵³ SCE Opening Testimony, pp. 68-69.

¹⁵⁴ SCE states here that TE Advisory services includes: “will target business customers including small, medium and large commercial fleet operators, school districts, transit agencies, cities and counties (including their various departments with fleet vehicles such as public works, emergency response, permitting and inspection agencies, and parking enforcement), workplaces and public charging locations with employee/visitor parking, and multi-unit dwelling owners, managers, and homeowners’ association representatives.” SCE Opening Testimony, p. 68.

¹⁵⁵ SCE Opening testimony, p. 11.

¹⁵⁶ “SCE will leverage the existing TE Advisory Board comprised of customers and industry stakeholders who provide input, guidance, and suggestions on the execution and ongoing improvement of the Charge Ready Make-Ready Expansion Program.” SCE Opening Testimony, p. 50.

¹⁵⁷ SCE Opening Testimony, p. 50.

¹⁵⁸ SCE Opening Testimony, p. 72.

¹⁵⁹ “The initial response to TE Advisory Services also confirmed a business customer interest for more technical assistance from a trusted energy advisor to help navigate the complexities of adopting and deploying TE technologies.” SCE Opening Testimony, p. A- 8.

1 account manager assistance. The TE Advisory Services Program also includes updated
2 web content specific to all of the customer classes in the Charge Ready 2 Application,
3 which builds on information available in the Pilot.¹⁶⁰ This demonstrates that SCE plans to
4 build on their lessons learned from the Charge Ready Pilot and leverage this directly
5 through the TE Advisory Services program. Since the TE Advisory Services Program
6 includes a more transparent and comprehensive strategy for engaging with all customer
7 classes, the Public Advocates Office recommends that the Commission only approve
8 funding for the \$4.8 million requested for TE Advisory Services.

9 SCE fails to leverage existing efforts and significant non-ratepayer funding.
10 Electrify America is pursuing a broad ME&O campaign along the same timeline as
11 Charge Ready 2, and Electrify America provides much more detail on how such funds
12 will be applied and a total estimated budget of \$27 million dedicated exclusively to
13 ME&O.¹⁶¹ For example, Electrify America breaks media awareness into four different
14 categories: Paid Media, Shared Media, Owned Media, and Earned Media, and establishes
15 specific audiences and targets for each,¹⁶² which demonstrates a targeted investment
16 strategy. On the other hand, while SCE lists mass media as a tool available in multiple
17 languages,¹⁶³ it gives little detail on how it would adapt to specific audience needs.

18 Electrify America also breaks down the approximately \$17 million proposal into
19 11 specific cost estimates, such as TV ads (\$3.3 million), radio ads (\$1.6 million), DAC
20 specific outreach (\$2-3 million).¹⁶⁴ In contrast, SCE does not break down any costs of

¹⁶⁰ “Updated web content on SCE.com business section, which includes information on: • Vehicle types • Charging Infrastructure • SCE’s EV Rates • Information specific to MUDs, Fleets, Workplaces, and Public sites • Links to additional tools, resources and fact sheets • Calls to action to reach out to SCE for more information and support (Account Manager or 800#)” SCE Opening Testimony, Appendix A, p. A – 39.

¹⁶¹ California ZEV Investment Plan: Cycle 2 , Electrify America, October 13, 2018.
<https://www.electrifyamerica.com/sites/default/files/inline-files/Cycle%202%20California%20ZEV%20Investment%20Plan.pdf>.

¹⁶² Figure 27, PESO Model Review. Electrify America, October 3, 2018, p. 69. Electrify America California Cycle 2 Investment Plan.

¹⁶³ SCE Opening Testimony, pp. 63-64.

¹⁶⁴ Figure 35, California Education and Awareness Budget, Electrify America, October 3, 2018, p. 75.

each tool, apart from the general categories of “Customer Education (\$8 million), Broad EV Awareness (\$28.7 million) and TE Advisory Services (\$4.8 million).¹⁶⁵

Given the effectiveness of direct engagement, the high interest in the Charge Ready Pilot among workplaces and destination centers, and the availability of non-ratepayer funds for mass ME&O,¹⁶⁶ the Commission should approve only SCE’s request for TE Advisory Services (\$4.8 million) of the total SCE requested \$41 million ME&O budget.¹⁶⁷

Q. Smart Charging Savings Should Be Incorporated Into SCE’s Distribution Planning Process.

SCE proposes to include a demand response program for all Charge Ready 2 customers with Level 2 charging stations.¹⁶⁸ SCE proposes to use the results of the Charge Ready Demand Response (DR) pilot scheduled (to be completed in 2019) and to develop a program “based on the most successful elements of the DR pilot (messaging, percentage of load drop, optimal event times, event durations, incentive amounts, etc.) and SCE’s DR strategy.”¹⁶⁹ SCE also proposes to require customers to be on a time of use rate plan,¹⁷⁰ fund core networking features for EVSEs,¹⁷¹ and generally promote grid benefits.¹⁷² To align with the Commission’s Distributed Energy Resources Action Plan¹⁷³

Electrify America California Cycle 2 Investment Plan.

¹⁶⁵ Table III-4 ME&O Costs, SCE Opening Testimony, p. 73.

¹⁶⁶ Funding for this plan is part of Volkswagen Group of America’s settlement in Appendix C to the 2.0 Liter Partial Consent Decree on October 25, 2016. *Electrify America*, October 3, 2018, p. 4.

<https://www.electrifyamerica.com/sites/default/files/inline-files/Cycle%202%20California%20ZEV%20Investment%20Plan.pdf>.

¹⁶⁷ SCE’s estimate of TE Advisory Services Program Costs. SCE Opening Testimony, p. 73.

¹⁶⁸ SCE Response to Public Advocate Office Data Request 2, Q9.

¹⁶⁹ SCE Response to Public Advocate Office Data Request 2, Q9.

¹⁷⁰ SCE Opening Testimony, p. 87.

¹⁷¹ SCE Opening Testimony, p. 61.

¹⁷² SCE Opening Testimony, p. 10.

¹⁷³ The Commission’s Distributed Energy Resources Action Plan includes vision elements for distribution grid infrastructure, planning, interconnection, and procurement. Specifically, there are multiple items within the Action Plan that reference cost effectiveness and valuation frameworks that accurately and impartially reflect the full grid services, renewables integration, and GHG value of DERs. The vision

1 and realize savings, SCE should incorporate these smart charging savings into their
2 distribution planning process.

3 Although DR programs may have significant value for TE programs,¹⁷⁴ it is not clear
4 if the potential distribution system benefits that can be realized by a smart charging DR
5 program are currently incorporated into the utilities distribution planning processes. On
6 July 2, 2018 SCE filed the “Distribution Forecasting Working Group Progress Report”
7 (Progress Report) in Rulemaking 14-08-013.¹⁷⁵ The Progress Report discusses how SCE
8 allocates EV and Load-Modifying DR forecasts developed by the California Energy
9 Commission (CEC), and published as part of the Integrated Energy Policy Report (IEPR),
10 to electric distribution circuits for use in its distribution planning process.

11 The Progress Report also includes distribution load forecast disaggregation data
12 sources in tables for EVs and Load-Modifying DR.¹⁷⁶ However, the Progress Report does
13 not specifically describe if and how SCE’s distribution load forecasting and distribution
14 planning process will account for distribution system benefits that can be realized by a
15 smart charging DR program. The Commission, therefore, should require SCE to
16 incorporate impacts of the Charge Ready 2 DR program into its distribution load
17 forecasting and distribution planning processes. SCE should collect data on any deferred
18 distribution investments that result from managed charging deployed through this

elements for Wholesale DER Market specifies that electric vehicle charging systems, and mobility and driving behaviors, can be predicted and overseen in the grid operations. Additionally, the Action Plan highlights that rates better reflect cost causation and capacity benefits of DERs as well as being flexible and timely.

http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Commissioners/Michael_J_Picker/2016-09-26%20DER%20Action%20Plan%20FINAL3.pdf

¹⁷⁴ The Commission’s Vehicle-Grid-Integration (VGI) Communications Protocol Working Group defined a series of benefits that could be achieved by VGI. The Glossary of Terms established by the working group outlines: customer facing VGI benefits, distribution system benefits, transmission system benefits, generation resource adequacy benefits, as well as the societal and environmental benefits of reduced greenhouse gas emissions and pollutants. EV demand response and controlled charging is a form of VGI.

¹⁷⁵ Distribution Forecasting Working Group Progress Report, Attachment A, p. 2. July 2, 2018. SCE, R.14-08-013.

¹⁷⁶ Distribution Forecasting Working Group Progress Report, Attachment A, p. 28 and p. 30. July 2, 2018. SCE, R.14-08-013.

1 program and include this in its Charge Ready 2 annual report which is submitted to the
2 Commission and served to parties.¹⁷⁷

3 **R. SCE Should Report On Sustainable Transportation Strategies**
4 **And Urban Planning.**

5 The Commission should evaluate whether programs that perpetuate personal car-
6 centric infrastructure, particularly with at-home charging, are appropriate for promoting
7 widespread TE. There are a multitude of mobility options that limit or reduce the need for
8 travel by personal vehicle, including: public transit, urban planning, bicycling,
9 ridesharing/carpooling, zoning/land-use, traffic-management, mode-choice, travel
10 demand, and many more. These strategies can help reduce the emissions and vehicle
11 miles traveled per capita by significant amounts and provide mobility for all communities
12 without requiring major grid infrastructure upgrades, investments, and risks.

13 The Public Advocates Office recognizes that moving Californians away from
14 private car dependence is essential to a more sustainable society. Accordingly, SCE
15 should be directed to concentrate its efforts of accelerating EV adoption on sustainable
16 transportation systems such as those mentioned above. SCE should include in its Charge
17 Ready 2 annual report information about: (1) How SCE is coordinating Charge Ready 2
18 with urban planning or local agencies around sustainable transportation systems; (2) How
19 consideration of the alternative mobility options referenced above have impacted
20 program decisions during deployment of Charge Ready 2.

21 **S. The 30 Percent DAC Minimum And 32,000 Port Installations**
22 **Should Be Binding.**

23 SCE proposes a deployment of charging ports in DACs that is no less than 30
24 percent of its total Charge Ready 2 charging port deployment.¹⁷⁸ Of its total deployment

¹⁷⁷ SCE Opening Testimony, p. 39. “SCE proposes to provide annual status reports to the Commission’s Energy Division and other interested stakeholders. The proposed reports will evaluate data across all program activities, including but not limited to: (i) customer enrollment and participation data; (ii) program process information; (iii) program installation costs; and (iv) customer usage data (e.g., EV usage data, transactions per day). The status reports will include updates on program progress, achievements, and lessons learned.”

¹⁷⁸ SCE Opening Testimony, p. 49.

1 funds, SCE proposes to reserve 30 percent for EVSE installations in DACs, with the
2 option to release unused funds for non-DAC site use after two years of program
3 implementation.¹⁷⁹ The Public Advocates Office supports SCE's goal to deploy 30
4 percent of its program in DACs, but recommends that the Commission make the DAC
5 target a binding target by rejecting SCE's proposal to release DAC funds unless they
6 meet its 30 percent DAC target. This will ensure that the communities most impacted by
7 air pollution benefit from this program.

8 In its testimony, SCE states that its DAC target is based on the success of its Phase
9 1 Pilot, which made 50 percent of all port installations in a DAC despite only setting a
10 target of 10%.¹⁸⁰ Despite this, SCE stated that it will likely not be able to replicate the
11 nearly 50 percent DAC deployment achieved in the Phase 1 Pilot due to the lowered port
12 requirements and expanded scale of the Charge Ready 2 Program. SCE, therefore,
13 determined that 30 percent is a more reasonable target for Charge Ready 2. SCE also
14 stated that 25 percent of its customers are located in a DAC¹⁸¹ and that 24 percent of its
15 residential customers are located in a DAC.¹⁸² Therefore, a binding 30 percent DAC
16 minimum for SCE's Charge Ready 2 is reasonable because it targets a similar share of
17 the DAC population present in SCE's service territory.

18 When taking into account the Public Advocates Office's recommendation of a
19 minimum of 5 ports per site for DACs and 10 for non-DACs¹⁸³ (as opposed to SCE's
20 proposal of a program-wide per site port minimum of 2), and rebate amounts of 100% for
21 DACs (compared to 50% for non-DAC MUDs, and 25% for other non-DACs),¹⁸⁴ a 30
22 percent minimum is even more reasonable. This is because having a higher per site port
23 minimum for non-DACs and having a higher rebate percentage for DACs may incent a

¹⁷⁹ SCE Opening Testimony, p. 49.

¹⁸⁰ SCE Response to Public Advocate Office, DR 1, Q6.

¹⁸¹ SCE Response to Public Advocate Office, DR 1, Q5.

¹⁸² SCE Response to Public Advocate Office, DR 5, Q2.

¹⁸³ See Alan Bach's Testimony, section B.

¹⁸⁴ See Alan Bach's Testimony, section E.

1 higher percentage of DAC installations. The higher DAC target is also consistent with
2 legislative finding in Senate Bill (SB) 350 that widespread transportation electrification
3 requires increased access for disadvantaged communities.¹⁸⁵

4 For the reasons stated above, the Public Advocates Office recommends that the 30
5 percent DAC minimum be binding. This means that SCE must reserve funds to cover 30
6 percent of the charging port deployment in DACs, and these funds cannot be released for
7 other uses. If these funds go unused, the funds should be returned to ratepayers.

8 **T. SCE Should Develop an Estimate for Greenhouse Gas Emission**
9 **Reductions Attributable to Charge Ready 2.**

10 As part of its Charge Ready 2 Testimony, SCE provides its *Clean Power and*
11 *Electrification Pathway* white paper (White Paper) where it lays out its plan for
12 California to meet its GHG emission and air pollution goals. In its White Paper, SCE
13 states that electrification of the transportation sector could lead to a statewide reduction
14 of over 20 million metric tons (MMT) of GHG emissions, over 17,000 tons of nitrogen
15 oxides (NOx) and over 51,000 tons of volatile organic compounds (VOCs) through
16 2030.¹⁸⁶ SCE also provides its *Charge Ready Phase 1 Program Pilot Report*, where it
17 states that a total of 214.7 metric tons (MT) of carbon-dioxide-equivalent emissions were
18 reduced due to charging stations it installed as part of the Phase 1 Pilot.¹⁸⁷

19 Though SCE provides an estimate for statewide GHG emissions reductions due to
20 transportation electrification and provides an estimate for GHG emission reductions
21 attributable to its Phase 1 Pilot, SCE does not provide an estimate for the GHG emission
22 reductions due to its Charge Ready Phase 2 Program. SCE should develop emission
23 reductions estimates attributable to its Charge Ready Phase 2 Program so that its potential
24 GHG emission and air quality benefits can be better quantified and understood. When
25 developing this estimate, SCE should consider, and factor in the fact that while some

¹⁸⁵ Senate Bill 350 (de León, 2015), Chapter 547, Statutes of 2015.

¹⁸⁶ SCE Opening Testimony, p. 11.

¹⁸⁷ SCE Opening Testimony, p. A-31.

1 drivers replace an old internal combustion engine (ICE) vehicle with an EV, others are
2 replacing a hybrid vehicle with an EV. The emission reductions from replacing an old
3 ICE vehicle and a hybrid vehicle can vary significantly, with ICE vehicles emitting 5,000
4 pounds more of carbon-dioxide-equivalent than hybrid vehicles, on average.¹⁸⁸

5 The Public Advocates Office recommends that SCE submit a report estimating the
6 GHG reductions attributable to Charge Ready 2 via a Tier 2 advice letter. This report
7 should cover the length and scope of the full Charge Ready 2 application and should
8 include an example and explanation of SCE’s estimation methodology for both the first
9 year of Charge Ready 2 and the full Charge Ready 2 length. SCE should also provide
10 estimates of actual GHG emissions reductions attributable to Charge Ready 2 in its
11 Charge Ready 2 annual report and include an explanation of its estimation methodology.

12 **U. SCE Should Introduce Additional Benchmarks To Track**
13 **Performance Accountability.**

14 SCE proposes to submit annual reports¹⁸⁹ for Charge Ready 2 to the Commission’s
15 Energy Division¹⁹⁰ with specific information on adoption rates and infrastructure
16 changes. The Public Advocates Office supports this endeavor and also advocates for
17 setting additional performance goals during the four-year program duration.

18 For example, MUD installation was particularly low in the Phase 1 Pilot (only 3
19 MUDs installed charging infrastructure).¹⁹¹ However, 39% of SCE’s customers live in

¹⁸⁸ In California, an ICE vehicle (gasoline vehicle) emits 11,435 pounds of carbon-dioxide-equivalent per year, whereas a hybrid vehicle emits 6,258 pounds of carbon-dioxide equivalent. That is a difference of over 5,000 pounds of carbon-dioxide-equivalent. See: https://afdc.energy.gov/vehicles/electric_emissions.html, “State Averages for California”. Accessed 11/19/2018.

¹⁸⁹ “The proposed reports will evaluate data across all program activities, including but not limited to: (i) customer enrollment and participation data; (ii) program process information; (iii) program installation costs; and (iv) customer usage data (e.g., EV usage data, transactions per day). The status reports will include updates on program progress, achievements, and lessons learned.” SCE Opening Testimony, p. 46.

¹⁹⁰ SCE Opening Testimony, p. 59.

¹⁹¹ Amended Pilot Report, p. 42.

1 MUDs,¹⁹² so there is opportunity to grow charging infrastructure adoption in this
2 category. The Public Advocates Office recommends establishing a MUD goal, such that
3 at the end of the program SCE installs 20%-40% of charging infrastructure in MUDs,
4 with a specific goal of 30%. The 20% parameter is consistent with the Commission
5 requirement from the Charge Ready Pilot Proposed Funding Mechanism that states at
6 least 20% of infrastructure be installed in MUDs.¹⁹³ The 40% parameter is roughly
7 consistent with the percentage of SCE customers that live in DACs (~39%). The 30%
8 goal is consistent with Commission precedent pursuant to the decision reached for
9 SDG&E's Power Your Drive program.¹⁹⁴

10 Additionally, in the Charge Ready Pilot workplaces were the primary location for
11 charging infrastructure,¹⁹⁵ therefore including a site utilization benchmark for these
12 locations would be appropriate. The Public Advocates Office recommends establishing
13 an interim per port kwh benchmark utilization goal within 6 months to a year after
14 infrastructure installation, with a potential total workplace utilization goal at the end of
15 the program. Similar to the Public Advocates Office recommendation on site
16 prioritization, SCE should develop these additional benchmarks in consultation with the
17 Program Advisory Council and seek approval through a tier 2 advice letter.

18 Lastly, SCE's should have a binding port requirement equal to the program size
19 determined in the budget. For example, SCE proposes to support 32,000 ports. Should the
20 Commission find this size to be reasonable, then SCE should be required to install a minimum of
21 32,000 ports. Without accountability, SCE may not make prudent expenditures to maximize the
22 deployment and benefits of the program. A definitive port installation minimum establishes
23 appropriate incentive for SCE to ensure success of the program.

¹⁹² SCE Response to Public Advocate Office data request 2, Q5.

¹⁹³ ALJ Goldberg's Proposed Decision for SCE's PFM of D.16-01-023, OP 5.

¹⁹⁴ In SDG&E's service territory, approximately 50% of customers live in MUDs. A target range was set for 40% to 60% deployment in MUDs, with a specific target of 50%. D.16-01-045, Attachment 2: Alternative VGI Program Terms, p. 172.

¹⁹⁵ Amended Pilot Report, p. 42.

1 **III. CONCLUSION**

2 For the above stated reasons, the Commission should adopt the Public Advocates
3 Office's recommended modifications to SCE's Charge Ready 2 program.

CHAPTER 2- COST ALLOCATION AND RATE RECOVERY

(Witnesses: Benjamin Gutierrez and Nathan Chau)

I. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

This chapter presents the Public Advocates Office's analysis concerning cost recovery, cost allocation, and rate impacts of SCE's Charge Ready 2 program. In total, SCE's Charge Ready 2 program will cumulatively add \$930.2 million (average of \$93 million per year)¹⁹⁶ over the next 10 years (2019-2029). SCE intends to assign these costs to customer classes using the distribution cost allocator.¹⁹⁷ Under SCE's proposed cost allocation method, SCE (1) assigns costs to each class by its distribution allocator, (2) divides these costs by the kilowatt-hour (kWh) sales for each class, and (3) then adds this total to each classes' distribution rates. SCE's proposal disproportionately impacts residential customers and should be rejected.

SCE's program provides environmental and social equity benefits akin to public purpose programs and, therefore, costs should be allocated in a similar manner as other public purpose programs. As a result, the Public Advocates Office recommends:

- SCE's program costs should be allocated to customer classes based on the Equal Cents per Kilowatt-hour (¢/kWh) approach.
- Program costs should be collected from customers via the public purpose program rate as a non-bypassable charge (NBC)¹⁹⁸ so that all customers¹⁹⁹ who enjoy these climate change mitigation and air quality benefits pay for the programs.

¹⁹⁶ SCE Response to Public Advocate Office data request 2, Q2a.

¹⁹⁷ SCE Testimony, p. 96.

¹⁹⁸ In adopting a successor to net energy metering tariff, D.16-01-044 defines non-bypassable charges to include Public Purpose Program Charge; Nuclear Decommissioning Charge; Competition Transition Charge; and Department of Water Resources bond charges – Findings of Fact 42.

¹⁹⁹ Including Net Energy Metering (NEM) customers and Direct Access/Community Choice Aggregation load.

II. DISCUSSION

A. SCE's Proposal Disproportionately Impacts the Residential Class

Different cost allocators result in different cost impacts on SCE's customer classes. Failure to ensure that all customers pay for TE programs equally will result in residential customers paying increasingly more for every electrified mile than other classes. Under SCE's proposal to use the distribution allocator, residential customers would pay 50% above their cost share than if costs were spread out equally among all kilowatt-hours (kWh), i.e. the Equal Cents method. Table 2-1 below compares the impact to class average rates using the Public Advocates Office's and SCE's methods to allocate program costs.

Table 2-1: Class Average Rate Change (¢/kWh) Required to Fund Charge Ready 2²⁰⁰									
	SCE Proposal²⁰¹								
Customer Class	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	0.1059	0.1659	0.2258	0.2577	0.1691	0.1638	0.1566	0.1497	0.1430
Lighting-Sm. Med. Power	0.0739	0.1157	0.1575	0.1798	0.1180	0.1143	0.1093	0.1044	0.0998
Large Power	0.0371	0.0581	0.0791	0.0903	0.0593	0.0574	0.0549	0.0525	0.0501
Agricultural & Pumping	0.0541	0.0847	0.1152	0.1315	0.0863	0.0836	0.0799	0.0764	0.0730
Street & Area Lighting	0.0149	0.0233	0.0317	0.0362	0.0238	0.0230	0.0220	0.0210	0.0201
Standby	0.0213	0.0334	0.0454	0.0518	0.0340	0.0329	0.0315	0.0301	0.0288
System	0.0756	0.1184	0.1612	0.1841	0.1209	0.1173	0.1123	0.1075	0.1028
	Public Advocates Office Proposal²⁰²								
Customer Class	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
Lighting-Sm. Med. Power	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
Large Power	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
Agricultural & Pumping	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
Street & Area Lighting	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
Standby	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960
System	0.0705	0.1104	0.1503	0.1717	0.1128	0.1094	0.1048	0.1004	0.0960

Moreover, Table 2-1 also demonstrates that under SCE's proposal residential customers would pay 185% more per kWh than their large commercial counterparts.²⁰³ This disparity presents a glaring equity issue that requires immediate correction. Otherwise, residential customers would be subjected to paying disproportionately for the costs of GHG abatement.

²⁰⁰ These figures are illustrative. CARE customers would pay less than the rate presented while non-CARE customers would pay more.

²⁰¹ SCE's illustrative bundled rates.

²⁰² The Public Advocates Office rates are identical for both bundled and unbundled customers.

²⁰³ From Table 2-1, under SCE's proposal, take residential charge divided by computed large customers charge for the same year.

Table 2-2 below illustrates the proportion of revenue requirement assigned to each of SCE's customer classes using the distribution allocator versus the equal cents per kWh allocator (or system sales allocator). Under the Equal Cents method, each customer class is assigned a portion of revenue based on its share of total kWh sales, which is more equitable for each customer class than the distribution cost allocator method.

Table 2-2 Distribution and Equal Cents (i.e. System Sales) Allocations by Rate Group		
	SCE	
	Distribution ²⁰⁴	Equal Cents per kWh (System Sales) ²⁰⁵
Residential	50.4%	33.6%
Small Commercial	8.1% ²⁰⁶	7.4%
Medium/Large Commercial & Industrial	38.2% ²⁰⁷	54.00%
Agricultural	3.1% ²⁰⁸	4.00%
Streetlighting	0.2%	0.9%
Total	100%	100% ²⁰⁹

Under the equal cents per kWh allocator, the residential class would be assigned 33.6% of total program costs (\$313 million over ten years), whereas under the distribution allocator it would be assigned 50.4% (\$469 million) of total program costs, or an increase of \$156 million.²¹⁰ As explained below in Section B, there is no

²⁰⁴ A.17-06-030, Motion of Southern California Edison Company (U 338-E) And Settling Parties for Adoption of Revenue Allocation Settlement Agreement, Attachment A "Marginal Cost and Revenue Allocation Settlement Agreement", Page 14. See "Capped" Distribution allocation for residential.

These numbers may vary slightly from the implied allocator that SCE uses to allocate costs in its response to data request 2, Q2a.

²⁰⁵ A.17-06-030, Motion of Southern California Edison Company (U 338-E) And Settling Parties for Adoption of Revenue Allocation Settlement Agreement, Attachment A "Marginal Cost and Revenue Allocation Settlement Agreement", p. 14. "NDC and PUCRF are allocated to all retail customers on an equal ¢/kWh basis." Dated July 3, 2018.

²⁰⁶ Includes TC-1 and TOU-GS-1. 313

²⁰⁷ Includes TOU-GS-3, TOU-GS-3, Standby, TOU-8-Sec, TOU-8-Pri, and TOU-8-Sub.

²⁰⁸ Includes TOU-PA-2 and TOU-PA-3.

²⁰⁹ Figures may not add up 100% due to rounding.

²¹⁰ Or 50% increase.

1 justification for this discrepancy because there is little correlation between the Charge
2 Ready 2 costs and what the distribution allocator represents.

3 Further, Charge Ready 2 is just one of many current and potentially future TE
4 programs in SCE’s service territory and, therefore, should not be viewed in isolation.²¹¹ If
5 all SCE TE programs use the distribution allocator, the significant and inequitable burden
6 on residential ratepayers would be compounded.

7 **B. The Distribution Allocator Does Not Align with How the**
8 **Program’s Environmental Benefits Will Accrue Broadly to All**
9 **Ratepayers**

10 The distribution allocator does not align with how the program’s environmental
11 benefits will accrue broadly to all ratepayers. SCE’s distribution allocator is designed to
12 recover marginal costs driven by peak load growth on distribution system assets (e.g.
13 circuits and substations) and by customer growth.²¹² These costs are incurred as a
14 response to expected changes in these cost drivers (i.e. peak demand growth and
15 customer growth).

16 In contrast, SCE’s Charge Ready 2 program was not designed in response to
17 expected (*naturally occurring*) load or customer growth, but rather is a top-down policy-
18 driven program designed to *encourage* electric vehicle (EV) adoption and new EV load
19 in order to achieve state GHG and air pollution reduction goals. SCE states that it seeks
20 to solve the “chicken-and-egg” problem between insufficient multi-unit dwelling (MUD)
21 EV uptake and insufficient MUD charging infrastructure to “accelerate adoption of plug-
22 in EVs in SCE territory as needed to meet the State’s GHG and air quality goals.”²¹³ As

²¹¹ See, e.g., Charge Ready Phase 1 (D.16-01-023), SCE’s Medium- and Heavy-Duty Program (D.18-05-040). In addition, the Commission’s Scoping Memo in A.18-01-012 (SDG&E’s MD/HD program) authorizes the utilities to file TE applications at their discretion. A.18-01-012, Scoping Memo, pp. 2-3 (Mar. 30, 2018).

²¹² For instance, SCE allocates its “peak-related” distribution design demand costs using peak load risk factors, which measure each customer class’ contribution to the highest (peak) loads during hours when circuit and substation capacity is most constrained. SCE also allocates its “non-peak” distribution design demand costs using effective demand factors, which convert each class’ total non-coincident demand into the class’ contribution to peak demand at the circuit and substation levels.

²¹³ SCE Testimony, p. 38.

1 such, SCE recognizes that some top-down market interference from the utility is required
2 to kick-start EV adoption (that otherwise would not materialize) in this sector. Charge
3 Ready 2 program costs, therefore, are not driven by changes in marginal load but by
4 broad public policy goals to mitigate GHG emissions and improve air quality.
5 Additionally, SCE expects that much of the new EV load will occur during hours when
6 “load is less costly to serve” and will be responsive to grid conditions.²¹⁴

7 TE investments included in SCE’s Charge Ready 2 Program has little correlation
8 with naturally occurring changes to distribution system loads and customer growth. As a
9 result, the distribution allocator is an inequitable and inapplicable allocator for assigning
10 SCE’s Charge Ready 2 costs. As explained below in Section C, a more appropriate
11 allocator would be the equal cents per kWh allocator, which recognizes the broad purpose
12 and benefits of TE investments and will equitably allocate investment risk to all
13 customers.

14 **C. Equal Cents Per kWh Allocation Is Consistent with Cost**
15 **Allocation for Other Programs That Have Environmental**
16 **And Social Equity Benefits.**

17 SCE’s Charge Ready 2 program is designed to produce climate change mitigation
18 (i.e., reduce GHG emissions) and air pollution benefits enjoyed broadly by its
19 customers.²¹⁵ SCE asserts that the Charge Ready 2 “will achieve the multiple objectives
20 outlined in [Senate Bill] 350, namely to reduce dependence on petroleum, meet air
21 quality standards, lower GHG emissions, and achieve the goals set forth in the Charge
22 Ahead California Initiative in California’s Health and Safety Code.”²¹⁶

23 Allocation of SCE’s program costs using the Public Advocates Office’s Equal
24 Cents per kWh proposal is consistent with the Commission’s allocation of past public

²¹⁴ *Ibid*, p. 23. SCE requires all participants in its Charge Ready Make-Ready Expansion program and its Charge Ready Own and Operate program to be on time-of-use rates and participate in demand response. SCE testimony, pp. 39-40, 52-53.

²¹⁵ See, e.g., SCE Testimony, pp. 10-11, 16-22, 85.

²¹⁶ SCE Testimony, p. 80.

1 purpose programs that similarly generated broad air quality and environmental benefits.
2 For example, in Decision (D.) 91-07-018 the Commission adopted an equal cents per
3 therm approach for Pacific Gas and Electric Company's (PG&E) Natural Gas Vehicle
4 (NGV) program. In that decision, the Commission found that "fixed infrastructure costs
5 associated with the NGV program result in air quality benefits enjoyed by all
6 Californians in their capacity as ratepayers and, as such, should be recovered on an Equal
7 Cents per therm basis over all volumes sold by PG&E to all customer classes"²¹⁷ Natural
8 gas vehicles are similar to electric vehicles in that, at the time of the NGV program,
9 NGVs were considerably cleaner than conventional fossil fueled vehicles.²¹⁸

10 Another example is PG&E's 2007 Biennial Cost Allocation Proceeding
11 (BCAP).²¹⁹ In that proceeding, the Commission found "that all customers should pay for
12 programs that provide environmental benefits."²²⁰ Based on this finding, the Commission
13 decided to include wholesale customers and electric generator (EG) customers in the
14 allocation of Self-Generation Incentive Program (SGIP) costs, and adopted PG&E's
15 proposal to allocate the costs on an Equal Cents per therm basis.²²¹

16 In addition to providing environmental benefits, SCE designed Charge Ready 2
17 with social equity considerations.²²² In particular, the program's expected reduction of
18 criteria air pollutants such as particulate matter and nitrogen oxides will benefit all
19 ratepayers, including customers in disadvantaged communities (DACs)—which are
20 "disproportionately affected by low EV adoption and the negative environmental impacts
21 of gasoline- and diesel-powered vehicles."²²³ With this in mind, SCE sets a deployment

²¹⁷ D.91-07-018, Finding of Fact 13, 40 CPUC2d 722, 1991 Cal. PUC LEXIS 509.

²¹⁸ D.91-07-018, p. 12. ("[O]f all the fossil fuels, natural gas results in the lowest, total, greenhouse-gas emissions.")

²¹⁹ A.04-07-044.

²²⁰ D.05-06-029, p. 18.

²²¹ D.05-06-029, p. 18.

²²² See, e.g., SCE Testimony, pp. 11, 49, 77.

²²³ SCE Testimony, pp. 20-21, A-31.

1 target of 30%²²⁴ of electric vehicle service equipment in DACs to “remove pollution from
2 gasoline- and diesel-powered vehicles traveling through these local communities.”²²⁵
3 Targeting part of the TE program to bring benefits to DACs is consistent with SB 350.²²⁶

4 The Commission consistently allocates costs on an Equal Cents basis for social
5 equity programs. The policy-driven costs to protect this lower income, vulnerable
6 segment of the population should be shared equally across all ratepayers, similar to the
7 allocation of the California Alternative Rates for Energy (CARE) program.²²⁷ SCE
8 allocates CARE costs on the basis of Equal Cents per kWh to all customers except CARE
9 customers.²²⁸ Allocation of program on an Equal Cents per kWh basis is comparable to
10 the CARE allocation and will protect residential ratepayers from having to bear too high
11 a burden of TE costs. In contrast, SCE’s proposal to allocate costs by the distribution
12 allocators would place an unfair burden of costs on residential ratepayers, including DAC
13 residents.²²⁹

14 Finally, once the costs of the Charge Ready 2 program are equitably allocated
15 between customer classes using the Equal Cents method, they should be collected through
16 the public purpose program (PPP) rate so that it would be a non-bypassable charge. The
17 PPP mechanism is appropriate because Direct Access and Community Choice
18 Aggregation customers would also bear appropriate responsibility for paying for the
19 climate change mitigation and air pollution reduction benefits that they would receive
20 from the TE program.

²²⁴ SCE Testimony, p. 10.

²²⁵ SCE Testimony, p. 77.

²²⁶ SB 350; see SB 32 (ch. 249, Stats. 2016), Sec. 1(c), available at
https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.

²²⁷ The CARE program is designed to keep energy affordable to lower income customers –Findings Of Facts D.15-07-001. PU Code section 739.1(c) requires that the average effective discount be between 30-35% for customers enrolled in this program.

²²⁸ This prevents CARE customers from having to pay for their own program.

²²⁹ See Section “A” and “B” for further discussion of why the distribution allocators are inappropriate and inequitable in this instance of SCE’s TE investments.

III. CONCLUSION

2 The Public Advocates Office recommends that SCE's program costs should be
3 recovered through a non-by passable public purpose program charge using the Equal
4 Cents per kWh allocation factors to reflect the broad environmental and health benefits to
5 all ratepayers.

APPENDIX A - Statements of Qualifications

QUALIFICATIONS AND PREPARED TESTIMONY
OF
ALAN BACH

Q1: Please state your name, business address, and position with the California Public Utilities Commission.

A1: My name is Alan Bach and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Utilities Engineer in the Energy Safety and Infrastructure Branch of the Public Advocates Office.

Q2: Please summarize your educational background.

A2: I have a Bachelor of Science in Engineering Science, and a Master of Science in Civil Engineering with a focus in Energy, Infrastructure, and Climate, both from the University of California, Berkeley.

Q3: Briefly describe your professional experience.

A3: I have been employed by the Public Advocates Office since February, 2018. Since then, I have worked on or am working on proceedings related to Transportation Electrification Standard Review Proposals (Application (A.) 17-01-020 et al.), Pacific Gas and Electric Company's (PG&E) Risk Assessment Mitigation Phase (Investigation (I.) 17-11-003), and PG&E's Gas Transmission and Storage General Rate Case (A. 17-11-009). Prior to working for the Public Advocates Office, I was a Utilities Engineer in the Commission's Safety and Enforcement Division, where I inspected utility gas infrastructure for safety compliance.

Q4: What is your responsibility in this proceeding?

A4: I am sponsoring Chapter 1 sections B, C, D, E, and G and co-sponsoring sections A, F, and Q of this testimony.

Q5: Does this conclude your prepared testimony?

A5: Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
FIDEL LEON DIAZ

Q1: Please state your name, business address, and position with the California Public Utilities Commission.

A1: My name is Fidel A. Leon Diaz and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Utilities Engineer in the Energy Safety and Infrastructure Branch of the Office of Ratepayer Advocates.

Q2: Please summarize your educational background.

A2: I have a Master of Science in Engineering, and a Certificate in Engineering and Business for Sustainability, from the University of California, Berkeley. My master's program; Energy, Civil Infrastructure, and Climate; was concentrated on the policy, technical background, and theory, pertaining to the nexus between the energy and environmental issues we face today. I focused primarily on distributed energy resources, electric vehicles, and their optimization. I also have a Bachelor of Science in Civil Engineering from Lipscomb University, with a minor in Applied Math.

Q3: Briefly describe your professional experience.

A3: I have been employed by the Public Advocates Office since March, 2018. During this time, I have worked on various proceedings related to the Transportation Electrification Standard Review Proposals (Application (A.)17-01-020 et al.), the California Independent System Operator (CAISO) Storage as a Transmission Asset initiative, and Southern California Edison Company's (SCE's) application for a Permit to Construct (PTC) the Eldorado-Lugo-Mohave Series Capacitor Project (A.18-05-007). Prior to working for ORA, I worked as an Advocacy Intern for six months for the nonprofit organization Bike East Bay. During this time, I worked on the now completed Bancroft Way Complete Streets Project, the Ford GoBike project, the Broadway Bike Lane Pop-Up Project, the 90th Ave Scraper Bikeway Project, the Bike East Bay Supplemental Bikeway Planning and Design Guide, and developing bicycle safety metrics for Alameda County.

Q4: What is your responsibility in this proceeding?

A4: I am sponsoring Chapter 1, sections K, L, M, N, S, and T and co-sponsoring sections H, I, and J of this testimony.

Q5: Does this conclude your testimony?

A5: Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
DANIELLE DOOLEY

Q1: Please state your name, business address, and position with the California Public Utilities Commission.

A1: My name is Danielle Dooley and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Public Utilities Regulatory Analyst in the Energy Safety and Infrastructure Branch at the Public Advocates Office.

Q2: Please summarize your educational background.

A2: I have a Master of International Affairs from the University of California (UC), San Diego School of Global Policy and Strategy, focusing in International Environmental Policy and Japan. My master's program focused on economics, regulation, foreign policy and energy and resource economics. I also have a Bachelor of Arts in Environmental Studies and History from the University of California, Santa Cruz.

Q3: Briefly describe your professional experience.

A3: I started working at the Public Advocates Office in October 2017. During this time, I worked primarily on the California Independent Service Operator (CAISO) Congestion Revenue Rights Stakeholder Initiative and Transportation Electrification Standard Review Proposals (A.17-01-020 et al. Prior to working at the Public Advocates Office, I worked at PPD Inc. as a Senior Business Analytics Fellow through the Environmental Defense Fund Climate Corps, where I conducted an environmental audit of their global offices. I also worked as a Development Services Coordinator at Save the Redwoods League (primarily handling their database administration), Contractor at GAP Inc.'s Social and Environmental Responsibility Department and spent 3 years working as a Waste Reduction Coordinator at UC Santa Cruz. Additionally, I interned with Pacific Environment on their China Program and the World Wildlife Fund as a Renewable Energy Intern.

Q4: What is your responsibility in this proceeding?

A4: I am sponsoring Chapter 1, sections P and U and co-sponsoring sections O and R of this testimony.

Q5: Does this conclude your testimony?

A5: Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
LIAM WEAVER

Q1. Please state your name, business address, and position with the California Public Utilities Commission.

A1. My name is Liam Weaver and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Utilities Engineer in the Energy Safety and Infrastructure Branch of the Public Advocates Office.

Q2. Please summarize your educational background.

A2. I graduated with a Master of Science in Engineering from the University of California (UC), Berkeley with a concentration in Energy, Civil Infrastructure, and Climate. I received a Certificate in Engineering and Business for Sustainability and focused primarily on optimization and integration of distributed energy resources, electric vehicles and renewable resources. I also have an Honors Bachelor of Science degree in Civil & Environmental Engineering from the University of Tennessee, Knoxville, with a minor in Business Administration.

Q3. Briefly describe your professional experience.

A3. I joined the Public Advocates Office as a Utilities Engineer in 2017 and manage technical projects for Electric Rule 21 Interconnection and the project coordinator for Transportation Electrification. Before joining the Public Advocates Office, I worked for 2 years on climate change infrastructure resiliency research in conjunction with the Knoxville Utilities Board, Oak Ridge National Laboratory, and the US Department of Homeland Security; worked for 7 months as an energy optimization data scientist for Greensparc, Inc.; and completed an internship advising the technical team for sustainable development at the New Zealand Green Building Council. For my project work at UC Berkeley I also collaborated with industry partners and focused on: optimization, aggregation, and integration of electric vehicle fleets to inform sustainable transportation electrification policy; optimal management and dispatch of distributed energy resource systems including solar photovoltaic and energy storage; electric vehicle and residential demand response automation through cyber-physical systems; and machine learning applications for Smart Grid Smart City program analysis.

Q4. What is your responsibility in this proceeding?

A4. I am the overall coordinator of this testimony and am co-sponsoring Chapter 1, sections A, F, H, I, J, O, Q, and R of this testimony.

Q5. Does this conclude your prepared testimony?

A5. Yes, it does.

**QUALIFICATIONS AND PREPARED TESTIMONY
OF
BENJAMIN GUTIERREZ**

Q1. Please state your name, business address, and position with the Public Advocates Office.

A1. My name is Benjamin Gutierrez and my business address is 505 Van Ness Avenue, San Francisco, California. I work in the Electricity Pricing and Customer Programs Branch of the Public Advocates Office as a Regulatory Analyst.

Q2. Please summarize your education background and professional experience.

A2. I graduated from Harvard University, Cambridge, MA with a B.A. in Environmental Science and Public Policy. I have been employed by the Public Advocates Office for three years. In my experience at the CPUC I have worked on marginal costs and residential rate design for customers with distributed energy resources in San Diego Gas and Electric Company's (SDG&E) 2016 General Rate Case Phase II, Pacific Gas and Electric Company's (PG&E) 2017 GRC Phase II, and Southern California Edison Company's (SCE) 2018 GRC Phase II. I have also submitted testimony on electric vehicle rate design and cost allocation in the Transportation Electrification (TE) proceeding (A.17-01-020) and SDG&E's Medium- and Heavy-Duty TE application (A.18-01-012). Prior to working for the Public Advocates Office, I worked as a Clean Energy Coordinator and Philanthropy Coordinator for two years for the Malaysian nonprofit organization Land Empowerment Animals People (LEAP). This entailed performing resource and cost analyses of clean energy and fossil fuel technologies, among other duties.

Q3. What is your responsibility in this proceeding?

A3. I am responsible for testimony in Chapter 2, "Cost Allocation and Rate Recovery."

Q4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
NATHAN CHAU

Q.1. Please state your name, business address, and position with the Public Advocates Office.

A.1. My name is Nathan Chau and my business address is 505 Van Ness Avenue, San Francisco, California. I work in the Electricity Pricing and Customer Programs Branch of the Public Advocates Office as a Regulatory Analyst.

Q.2. Please describe your educational and professional experience

A.2. I hold a Bachelor of Science degree in Applied Economics from the University of the Pacific. My degree included coursework in finance, economics, and econometrics that I find relevant to this case. Since joining the Commission in April 2015, I have actively participated in a number of rate cases such as SDG&E's General Rate Case Phase II (A.15-04-012), PG&E's General Rate Case Phase II (A.16-06-013), the Time-of-Use Order Instituting Rulemaking (R.15-12-012), and the Residential Rate Reform proceeding (R.12-06-013). I have also submitted testimony on electric vehicle rate design and cost allocation in the Transportation Electrification (TE) proceeding (A.17-01-020) and SDG&E's Medium- and Heavy-Duty TE application (A.18-01-012).

Q.3. What is your area of responsibility in this proceeding?

A.3. I am responsible for testimony in Chapter 2, "Cost Allocation and Rate Recovery."

Q.4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

APPENDIX B – Attachments

Table 1. Public Advocates Office Adjustments to Charge Ready 2 Costs

Cost Category	SCE Proposed	Port Minimum Requirement	>40 Port Site Assumption	Rebate Levels	No Ownership	Labor Adjustment	Avg Cost Adjustment	ME&O Adjustment
Utility Side Make-Ready	\$ 130,464,816	\$ 97,554,354	\$ 90,100,344	\$ 90,100,344	\$ 90,100,344	\$ 90,100,344	\$ 59,015,725.21	\$ 59,015,725.21
Customer Side Make-Ready	\$ 395,309,874	\$ 332,406,228	\$ 307,007,471	\$307,007,471	\$307,007,471	\$ 307,007,471	\$ 201,089,893.67	\$201,089,893.67
Ownership	\$ 16,156,339	\$ 16,156,339	\$ 16,156,339	\$ 16,156,339	\$ -	\$ -	\$ -	\$ -
Cap. Non-Labor	\$ 2,057,500	\$ 2,057,500	\$ 2,057,500	\$ 2,057,500	\$ 2,057,500	\$ 2,057,500	\$ 2,057,500.00	\$ 2,057,500.00
Cap. Labor	\$ 16,952,980	\$ 16,952,980	\$ 16,952,980	\$ 16,952,980	\$ 16,952,980	\$ 11,388,144	\$ 16,952,980.29	\$ 11,388,144.12
O&M Non-Labor	\$ 550,000	\$ 550,000	\$ 550,000	\$ 550,000	\$ 550,000	\$ 550,000	\$ 550,000.00	\$ 550,000.00
O&M Labor	\$ 10,901,490	\$ 10,901,490	\$ 10,901,490	\$ 10,901,490	\$ 10,901,490	\$ 8,173,667	\$ 10,901,489.62	\$ 8,173,667.38
O&M Ownership	\$ 11,801,034	\$ 11,801,034	\$ 11,801,034	\$ 11,801,034	\$ -	\$ -	\$ -	\$ -
Rebate L2	\$ 55,120,582	\$ 55,120,582	\$ 55,120,582	\$ 28,932,479	\$ 34,432,884	\$ 34,432,884	\$ 34,432,883.67	\$ 34,432,883.67
Rebate DCFC	\$ 5,539,326	\$ 3,997,915	\$ 3,692,439	\$ 3,692,439	\$ 3,692,439	\$ 3,692,439	\$ 3,692,439.01	\$ 3,692,439.01
New Construction Rebate	\$ 64,000,000	\$ 64,000,000	\$ 64,000,000	\$ 64,000,000	\$ 64,000,000	\$ 64,000,000	\$ 64,000,000.00	\$ 64,000,000.00
Marketing Non-Labor	\$ 9,742,000	\$ 9,742,000	\$ 9,742,000	\$ 9,742,000	\$ 9,742,000	\$ 9,742,000	\$ 9,742,000.00	\$ 9,742,000.00
ME&O	\$ 41,527,820	\$ 41,527,820	\$ 41,527,820	\$ 41,527,820	\$ 41,527,820	\$ 41,527,820	\$ 41,527,820.00	\$ 4,800,000.00
Capital Total	\$ 560,941,510	\$ 465,127,401	\$ 432,274,635	\$432,274,635	\$416,118,295	\$410,553,459	\$ 279,116,099	\$ 273,551,263
Expense Total	\$ 199,182,251	\$ 197,640,840	\$ 197,335,364	\$171,147,261	\$164,846,632	\$162,118,810	\$ 164,846,632	\$ 125,390,990
Total Program Cost	\$ 760,123,761	\$ 662,768,241	\$ 629,609,999	\$603,421,896	\$580,964,928	\$572,672,269	\$ 443,962,731	\$ 398,942,253
Capital Cost Change	N/A	\$ (95,814,109)	\$ (32,852,767)	\$ -	\$ (16,156,339)	\$ (5,564,836)	\$ (137,002,196)	\$ -
Expense Cost Change	N/A	\$ (1,541,411)	\$ (305,476)	\$ (26,188,103)	\$ (6,300,629)	\$ (2,727,822)	\$ -	\$ (36,727,820)
Estimated make-ready per port Installation Cost (L1,L2 Infr)	\$16,273	\$13,308	\$12,291	\$12,291	\$12,291	\$12,291	\$8,050	\$8,050

Table 2. Charge Ready Phase II Annual Revenue Requirement 2019-2029

Southern California Edison
Charge Ready Phase II
Cal PA-SCE-002 (Reference TURN-SCE-001 Q.1)
2019-2029 Revenue Requirement
\$ in Millions

Revenue Requirement (in Millions of Nominal Dollars)													
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	
1 O&M	\$ 16	\$47 9	\$57 9	\$ 62 1	\$ 55 9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 225 4	
2 Franchise Fees and Uncollectibl	\$ 0 0	\$ 0 7	\$ 1 0	\$ 1 4	\$ 1 6	\$ 1 1	\$ 1 0	\$ 1 0	\$ 1 0	\$ 0 9	\$ 0 9	\$ 10 7	
3 Depreciation	\$ 0 1	\$ 2 9	\$ 9 7	\$ 18 1	\$ 25 3	\$28 1	\$28 0	\$28 0	\$28 0	\$28 0	\$28 0	\$ 224 2	
4 Taxes	\$ 0 0	\$ 1 4	\$ 5 2	\$ 10 9	\$ 16 4	\$19 0	\$19 2	\$18 2	\$17 2	\$16 3	\$15 4	\$ 139 2	
5 Return	\$ 0 0	\$ 4 8	\$16 7	\$ 30 8	\$ 42 1	\$45 1	\$42 7	\$40 4	\$38 2	\$36 0	\$33 8	\$ 330 7	
6 Total Revenue Requirement	\$ 1 8	\$57 8	\$90 5	\$123 4	\$141 3	\$93 2	\$90 9	\$87 6	\$84 4	\$81 2	\$78 0	\$ 930 2	

ATTACHMENT 1:

SCE RESPONSES TO THE PUBLIC ADVOCATES
OFFICE'S DATA REQUEST

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Cal PA-SCE-001

To: CAL PA
Prepared by: Mauro Dresti
Title: Manager
Dated: 08/24/2018

Question 05:

5. Please provide the percentage of customers in SCE's service territory that are located in DACs. A DAC is defined as the top 25 percent statewide census tracts as identified by the CalEnviroScreen 3.0 tool.

Response to Question 05:

25% of SCE's customers are located in DACs.

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Cal PA-SCE-001

To: CAL PA
Prepared by: Eric Seilo
Title: Snr Advisor
Dated: 08/24/2018

Question 06:

6. Please provide all workpapers, assumptions, and rationale SCE used to develop its 30% DAC target.

Response to Question 06:

SCE did not develop workpaper calculations to determine the 30% target. Rather, the 30% goal is established based on findings from the Charge Ready Pilot. The Charge Ready Pilot exceeded its 10% DAC commitment, which demonstrated that a 10% commitment may be too low. However, SCE believes that due to lowered port requirements and expanded scale of the Charge Ready 2 program, SCE will likely not be able to replicate the nearly 50% DAC deployment achieved in the Pilot. Therefore, SCE determined that 30% is a more reasonable target of 30% for Charge Ready 2.

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Cal PA-SCE-002

To: CAL PA

Prepared by: Sherrie Houang

Title: CPUC Revenue Requirements, Senior Specialist

Dated: 10/01/2018

Question 02a:

2. While accounting for the anticipated increased electricity load in Item 1, please provide the following:

a. The projected annual revenue requirements over the next ten years (2019 – 2028) due to SCE's Application

Response to Question 02a:

Please see the table below for annual revenue requirements over the 2019-2029 period.

Revenue Requirement (in Millions of Nominal Dollars)												
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
1. O&M	\$ 1.6	\$ 47.9	\$ 57.9	\$ 62.1	\$ 55.9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	225.4
2. Franchise Fees and Uncollectibles	\$ 0.0	\$ 0.7	\$ 1.0	\$ 1.4	\$ 1.6	\$ 1.1	\$ 1.0	\$ 1.0	\$ 1.0	\$ 0.9	\$ 0.9	10.7
3. Depreciation	\$ 0.1	\$ 2.9	\$ 9.7	\$ 18.1	\$ 25.3	\$ 28.1	\$ 28.0	\$ 28.0	\$ 28.0	\$ 28.0	\$ 28.0	224.2
4. Taxes	\$ 0.0	\$ 1.4	\$ 5.2	\$ 10.9	\$ 16.4	\$ 19.0	\$ 19.2	\$ 18.2	\$ 17.2	\$ 16.3	\$ 15.4	139.2
5. Return	\$ 0.0	\$ 4.8	\$ 16.7	\$ 30.8	\$ 42.1	\$ 45.1	\$ 42.7	\$ 40.4	\$ 38.2	\$ 36.0	\$ 33.8	330.7
6. Total Revenue Requirement	\$ 1.8	\$ 57.8	\$ 90.5	\$ 123.4	\$ 141.3	\$ 93.2	\$ 90.9	\$ 87.6	\$ 84.4	\$ 81.2	\$ 78.0	930.2

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Cal PA-SCE-002

To: CAL PA
Prepared by: Eric Seilo
Title: Snr Advisor
Dated: 10/01/2018

Question 06:

6. On page 15 of SCE's opening testimony, SCE proposes a 2 port minimum for Charge Ready Phase 2.
- a. Please describe why in SCE's workpapers in response to Public Advocates' DR 01 Q01, there are no cost estimates for sites with only 2-3 ports, despite 2 ports being SCE's proposed minimum.
 - b. Please explain and provide analysis for how SCE's proposed reduced port minimum of 2 ports per site affects its per port cost estimates.

Response to Question 06:

- a. SCE did not directly model the range of site costs for 2- to 3-port sites due to the unique nature of the installations. However, the average cost per site is estimated to be similar to the costs reflected in the 4- to 6-port sites detailed in SCE's workpapers. Consequently, the allowance of two- or three-port sites as a programmatic variable will be managed by SCE throughout the program based on total site cost, site growth potential and expected site learnings.

Just as other sites are bound by cost parameters to be eligible for the program, SCE would not install two- or three-port sites that were excessive in cost and did not meet the established cost parameters for the program. In addition to cost, sites would be evaluated on the future growth plans or potential at each site (i.e., a site that only needs two ports initially but has plans to increase number of ports later). Limited exceptions to the cost threshold parameter may also include sites that demonstrate novel charging models that SCE can gain useful learnings from or serve as a key new solution for customers (e.g., curbside charging where four or more ports may be too large to serve demand on a city block).

- b. As stated in section a, SCE did not directly model site costs for 2- to 3-port sites. SCE believes that the current cost estimates encompass the costs for the thoughtful installation of two- and three-port sites.

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Cal PA-SCE-002

To: CAL PA
Prepared by: Eric Seilo
Title: Snr Advisor
Dated: 10/01/2018

Question 07:

7. Please explain why, in SCE's workpapers to Public Advocates' DR 01 Q01, SCE assumes a 100% rebate for all EVSEs, when only DACs and MUDs were provided a 100% rebate in SCE's Charge Ready Pilot.

Response to Question 07:

The exact participation by each customer segment in the program is unknown at this time. Because SCE proposes a 100% rebate for all customer segments and in an effort to manage the budget overrun risk for an at-scale program, SCE assumed that all customers would receive the full rebate. To help manage overestimating the proposed program cost, the rebate is capped at \$2,000 (as described in SCE's testimony on page 48). This cap is approximately equal to the average full rebate for customer selected stations in the Charge Ready Pilot.

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Public Advocates Office-CR2-SCE-05

To: PUBLIC ADVOCATES OFFICE

Prepared by: April Quon

Title: Project Manager

Dated: 11/01/2018

Question Item 1:

SCE's response to the October 1, 2018 Data Request 02, Question 05, provided the percentages of DAC customers that live in a MUD and the percentage of MUD customers that are located in a DAC (based on the statewide definition of DACs). During a call on November 1, 2018 with April Quon, the preparer for Question 05, April clarified that (1) of SCE residential customers that are located in a DAC, 46% live in a MUD; and (2) of SCE residential customers that live in a MUD, 29% live in a DAC.

Please confirm that clarifications (1) and (2) are correct. If they are not correct, please provide and explain the calculations SCE performed to arrive at the percentages provided in SCE's answer to Data Request 02, Question 05.

Response to Question Item 1:

- 1) Of SCE residential customers that are located in a DACs, 46% live in a MUD. This was calculated by dividing the total number of SCE residential MUD service accounts in DACs by total number of SCE residential accounts in DACs.
- 2) OF SCE residential customers that live in a MUD, 29% live in a DAC. This was calculated by dividing the total number of SCE residential MUD service accounts in DACs by the total number of SCE residential MUD service accounts.

Southern California Edison
Charge Ready 2 App A.18-06-015

DATA REQUEST SET A.18-06-015 Public Advocates Office-CR2-SCE-05

To: PUBLIC ADVOCATES OFFICE

Prepared by: April Quon

Title: Project Manager

Dated: 11/01/2018

Question Item 2:

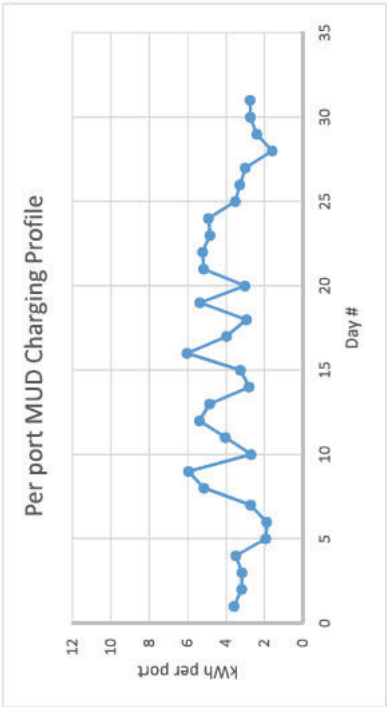
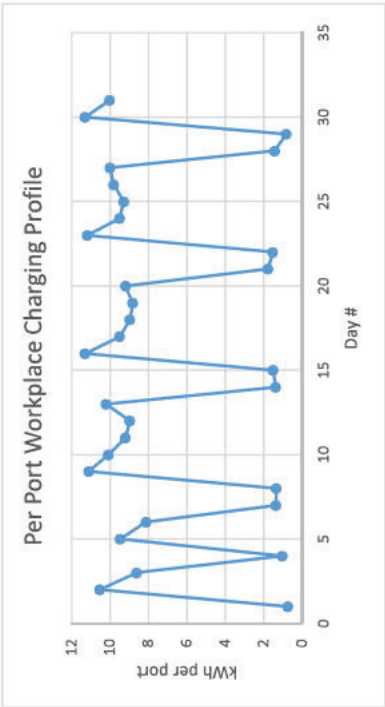
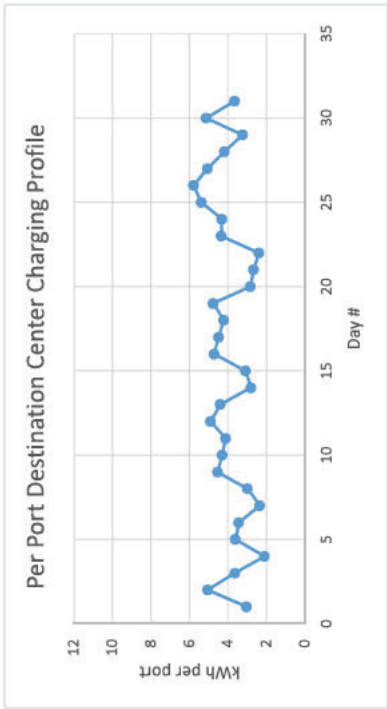
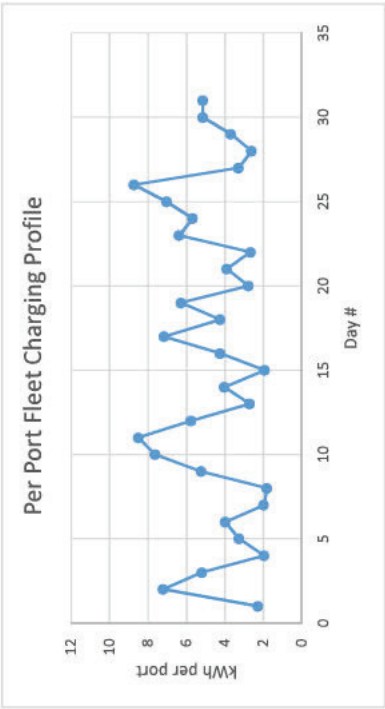
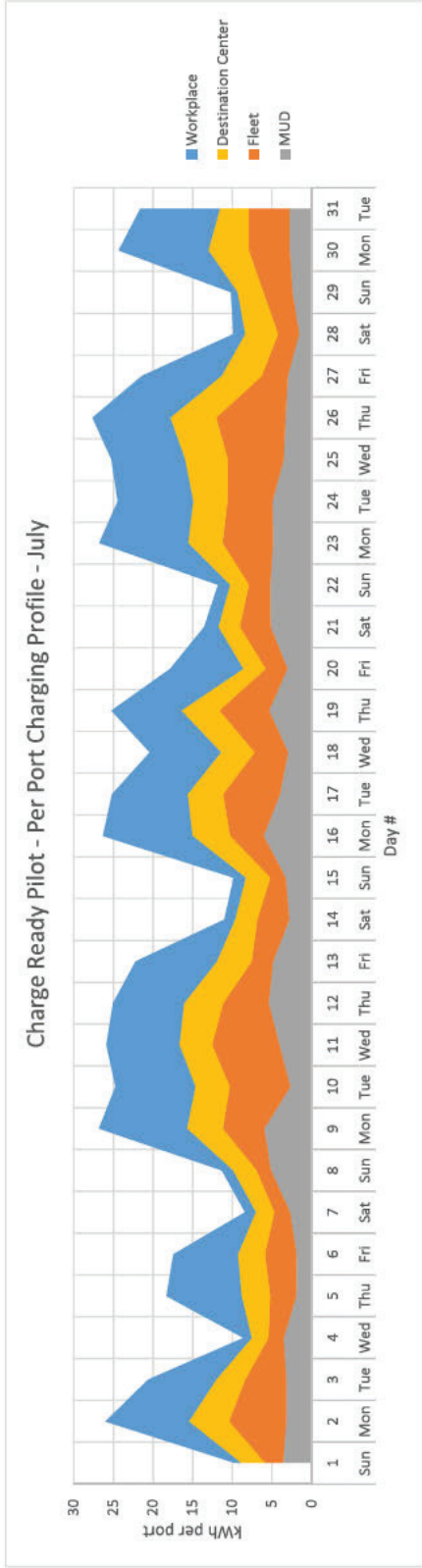
During a call on November 1, 2018 with April Quon, April stated that 24% of SCE's residential customers are located in a DAC.

Please confirm that April's statement that 24% of SCE's residential customers are located in a DAC. If this statement is not correct, please provide the correct percentage of SCE's residential customers that are located in a DAC.

Response to Question Item 2:

Of SCE's residential customers, 24% live in DACs. This was calculated by dividing the total number of SCE residential service accounts in DACs by the total number of SCE residential service accounts.

ATTACHMENT 2:
PUBLIC ADVOCATES OFFICE'S AGGREGATED
UTILIZATION DATA



**Excerpt from US Department of Housing and Urban
Development's FY 2022 Fair Market Rent Documentation
System**



FY 2022 FAIR MARKET RENT DOCUMENTATION SYSTEM

The FY 2022 Oakland-Fremont, CA HUD Metro FMR Area FMRs for All Bedroom Sizes

Final FY 2022 & Final FY 2021 FMRs By Unit Bedrooms					
Year	Efficiency	One-Bedroom	Two-Bedroom	Three-Bedroom	Four-Bedroom
FY 2022 FMR	\$1,538	\$1,854	\$2,274	\$3,006	\$3,578
FY 2021 FMR	\$1,595	\$1,934	\$2,383	\$3,196	\$3,863

Alameda County, CA is part of the Oakland-Fremont, CA HUD Metro FMR Area, which consists of the following counties: Alameda County, CA; and Contra Costa County, CA. All information here applies to the entirety of the Oakland-Fremont, CA HUD Metro FMR Area.

Fair Market Rent Calculation Methodology

[Show/Hide Methodology Narrative](#)

Fair Market Rents for metropolitan areas and non-metropolitan FMR areas are developed as follows:

1. 2015-2019 5-year American Community Survey (ACS) estimates of 2-bedroom adjusted standard quality gross rents calculated for each FMR area are used as the new basis for FY2022 provided the estimate is statistically reliable. For FY2022, the test for reliability is whether the margin of error for the estimate is less than 50% of the estimate itself and whether the ACS estimate is based on at least 100 survey cases. HUD does not receive the exact number of survey cases, but rather a categorical variable known as the count indicator indicating a range of cases. An estimate based on at least 100 cases corresponds to a count indicator of 4 or higher.

If an area does not have a reliable 2015-2019 5-year, HUD checks whether the area has had at least minimally reliable estimate in any of the past 3 years, or estimates that meet the 50% margin of error test described above. If so, the FY2022 base rent is the average of the inflated ACS estimates.

If an area has not had a minimally reliable estimate in the past 3 years, the estimate State for the area's corresponding metropolitan area (if applicable) or State non-metropolitan area is used as the basis for FY2022.

2. HUD calculates a recent mover adjustment factor by comparing a 2019 1-year 40th percentile recent mover 2-bedroom rent to the 2015-2019 5-year 40th percentile adjusted standard quality gross rent. If either the recent mover and non-recent mover

rent estimates are not reliable, HUD uses the recent mover adjustment for a larger geography. For metropolitan areas, the order of geographies examined is: FMR Area, Entire Metropolitan Area (for Metropolitan Sub-Areas), State Metropolitan Portion, Entire State, and Entire US; for non-metropolitan areas, the order of geographies examined is: FMR Area, State Non-Metropolitan Portion, Entire State, and Entire US. The recent mover adjustment factor is floored at one.

3. HUD calculates the appropriate recent mover adjustment factor between the 5-year data and the 1-year data.
4. In order to calculate rents that are "as of" 2020, HUD calculates the relevant (regional or local) change in gross rent Consumer Price Index (CPI) from annual 2019 to annual 2020.
5. To further inflate rents from 2020 to FY2022, HUD uses a "trend factor" based on the forecast of gross rent changes through FY2022.
6. HUD multiplies the base rent by the recent mover factor, the gross rent CPI, and the trend factor to produce a rent that is "as of" the current fiscal year.
7. FY2022 FMRs are then compared to a State minimum rent, and any area whose preliminary FMR falls below this value is raised to the level of the State minimum.
8. HUD calculates "bedroom ratios" and multiplies these by the two-bedroom rent to produce preliminary FMRs for unit sizes other than two bedrooms.
9. FY2022 FMRs may not be less than 90% of FY2021 FMRs. Therefore, HUD applies "floors" based on the prior year's FMRs.

The results of the Fair Market Rent Step-by-Step Process

1. The following are the 2019 American Community Survey 5-year 2-Bedroom Adjusted Standard Quality Gross Rent estimate and margin of error for Oakland-Fremont, CA HUD Metro FMR Area.

Area	ACS ₂₀₁₉ 5-Year 2-Bedroom Adjusted Standard Quality Gross Rent	ACS ₂₀₁₉ 5-Year 2-Bedroom Adjusted Standard Quality Gross Rent Margin of Error	Ratio	Sample Size Category	Result
Oakland-Fremont, CA HUD Metro	<u>\$1,691</u>	\$11	$\frac{\$11}{\$1,691} = 0.007$	6	$0.007 < .5$ $6 \geq 4$ Use ACS ₂₀₁₉

FMR
Area5-Year
Oakland-
Fremont,
CA HUD
Metro FMR
Area 2-
Bedroom
Adjusted
Standard
Quality
Gross
Rent

Since the ACS₂₀₁₉ Margin of Error Ratio is less than .5, the ACS₂₀₁₉ Oakland-Fremont, CA HUD Metro FMR Area value is used for the estimate of 2-Bedroom Adjusted Standard Quality Gross Rent:

Area	FY2022 Base Rent
Oakland-Fremont, CA HUD Metro FMR Area	\$1,691

2. A recent mover adjustment factor is applied based on the smallest area of geography which contains Oakland-Fremont, CA HUD Metro FMR Area and has an ACS₂₀₁₉ 1-year Adjusted Standard Quality Recent-Mover estimate with a Margin of Error Ratio that is less than .5.

Area	ACS ₂₀₁₉ 1-Year Adjusted Standard Quality Recent-Mover Gross Rent	ACS ₂₀₁₉ 1-Year Adjusted Standard Quality Recent-Mover Gross Rent Margin of Error	Ratio	Sample Size Category	Result
Oakland-Fremont, CA HUD Metro FMR Area – 2 Bedroom	<u>\$2,175</u>	\$52	0.024	6	0.024 < .5 6 ≥ 4 Use ACS ₂₀₁₉ 1-Year Oakland-Fremont, CA HUD Metro FMR Area 2-Bedroom Adjusted Standard Quality Recent-Mover Gross Rent

The smallest area of geography which contains Oakland-Fremont, CA HUD Metro FMR Area and has an ACS₂₀₁₉ 1-year Adjusted Standard Quality Recent-Mover estimate with a Margin of Error Ratio that is less than .5 and with a sufficient number of sample cases is Oakland-Fremont, CA HUD Metro FMR Area.

3. The calculation of the relevant Recent-Mover Adjustment Factor for Oakland-Fremont, CA HUD Metro FMR Area is as follows:

ACS₂₀₁₉ 5-Year Area	ACS₂₀₁₉ 5-Year 40th Percentile Adjusted Standard Quality Gross Rent	ACS₂₀₁₉ 1-Year 40th Percentile Adjusted Standard Quality Recent-Mover Gross Rent
Oakland-Fremont, CA HUD Metro FMR Area – 2 Bedroom	<u>\$1,691</u>	<u>\$2,175</u>

Area	Ratio	Recent-Mover Adjustment Factor
Oakland-Fremont, CA HUD Metro FMR Area	$\frac{\$2,175}{\$1,691} = 1.286$	$1.2862 \geq 1.0$ Use calculated Recent-Mover Adjustment Factor of 1.2862

4. The calculation of the relevant CPI Update Factors for Oakland-Fremont, CA HUD Metro FMR Area is as follows: HUD updates the 2019 intermediate rent with the ratio of the annual 2020 local or regional CPI to the annual 2019 local or regional CPI to establish rents as of 2020.

	Update Factor	Type
CPI Update Factor	<u>1.0286</u>	Local CPI

5. The calculation of the Trend Factor is as follows: HUD forecasts the change in national gross rents from 2020 to 2022 for each CPI area and Census Region. This makes Fair Market Rents "as of" FY2022.

Trend Factor	Trend Factor Type
<u>1.0163</u>	Local

6. The FY 2022 2-Bedroom Fair Market Rent for Oakland-Fremont, CA HUD Metro FMR Area is calculated as follows:

Area	<u>ACS₂₀₁₉ 5-Year Estimate</u>	<u>Recent-Mover Adjustment Factor</u>	<u>Annual 2019 to 2020 CPI Adjustment</u>	<u>Trending 1.0163 to FY2022</u>	FY 2022 2-Bedroom FMR
Oakland-Fremont, CA HUD Metro FMR Area	\$1,691	1.28622	1.02863	1.01630	$\$1,691 * 1.28622 * 1.02863 * 1.01630 = \$2,274$

7. In keeping with HUD policy, the preliminary FY 2022 FMR is checked to ensure that it does not fall below the state minimum.

Area	Preliminary FY2022 2-Bedroom FMR	FY 2022 California State Minimum	Final FY2022 2-Bedroom FMR
Oakland-Fremont, CA HUD Metro FMR Area	\$2,274	<u>\$757</u>	$\$2,274 \geq \757 Use Oakland-Fremont, CA HUD Metro FMR Area FMR of \$2,274

8. Bedroom ratios are applied to calculate FMRs for unit sizes other than two bedrooms.

Click on the links in the table to see how the bedroom ratios are calculated.

FY 2022 FMRs By Unit Bedrooms					
	Efficiency	One-Bedroom	Two-Bedroom	Three-Bedroom	Four-Bedroom
FY 2022 FMR	\$1,538	\$1,854	\$2,274	\$3,006	\$3,578

9. The FY2022 FMR must not be below 90% of the FY2021 FMR.

	Efficiency	One-Bedroom	Two-Bedroom	Three-Bedroom	Four-Bedroom
FY2021 FMR	\$1,595	\$1,934	\$2,383	\$3,196	\$3,863
FY2021 floor	\$1,436	\$1,741	\$2,145	\$2,877	\$3,477
FY 2022 FMR	\$1,538	\$1,854	\$2,274	\$3,006	\$3,578
Use FY2021 floor for FY2022?	No	No	No	No	No

Final FY2022 Rents for All Bedroom Sizes for Oakland-Fremont, CA HUD Metro FMR Area

The following table shows the Final FY 2022 FMRs by bedroom sizes.

Final FY 2022 FMRs By Unit Bedrooms					
	Efficiency	One-Bedroom	Two-Bedroom	Three-Bedroom	Four-Bedroom

Final FY 2022 FMR	\$1,538	\$1,854	\$2,274	\$3,006	\$3,578
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The FMRs for unit sizes larger than four bedrooms are calculated by adding 15 percent to the four bedroom FMR, for each extra bedroom. For example, the FMR for a five bedroom unit is 1.15 times the four bedroom FMR, and the FMR for a six bedroom unit is 1.30 times the four bedroom FMR. FMRs for single-room occupancy units are 0.75 times the zero bedroom (efficiency) FMR.

Permanent link to this page:

http://www.huduser.gov/portal/datasets/fmr/fmrs/FY2022_code/2022summary.odn?&year=2022&fmrtype=Final&selection_type=county&fips=0600199999

Other HUD Metro FMR Areas in the Same MSA

Select another Final FY 2022 HUD Metro FMR Area that is a part of the San Francisco-Oakland-Berkeley, CA:

San Francisco, CA HUD Metro FMR Area ▼ Select Metropolitan FMR Area

Select a different area

Press below to select a different county within the same state (same primary state for metropolitan areas):

Alameda County, CA
Alpine County, CA
Amador County, CA
Butte County, CA
Calaveras County, CA

Select a new county

Press below to select a different state:

Select a new state

Select a Final FY 2022 Metropolitan FMR Area:

Oakland-Fremont, CA HUD Metro FMR Area ▼
Select Metropolitan FMR Area

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[Multifamily Tax Subsidy Project \(MTSP\) Income Limits](#) |
[HUD LIHTC Database](#)

Prepared by the [Program Parameters and Research Division](#), HUD. Technical problems or questions? [Contact Us](#).

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 8(iii)**

FOCUS GROUPS ¹	
Participant Costs ²	\$ 18,500
Focus Group Administration ³	\$ 29,500
Findings and Report	\$ 17,000
Subtotal	\$ 65,000
# of Years Initiative Conducted	2
FOCUS GROUP TOTAL	\$ 130,000

¹ Focus Group costs estimated assuming 10 focus groups per year conducted

² Participant costs include recruiting, incentives, and travel costs

³ Administration costs include facility, tech, materials, translation and moderation costs

CBO PARTNERSHIP FOR CUSTOMER OUTREACH ¹	
Participant Costs ²	\$ 35,000
Administration ³	\$ 60,000
Findings and Report	\$ 30,000
Subtotal	\$ 125,000
# of Years Initiative Conducted	4
CBO PARTNERSHIP FOR CUSTOMER OUTREACH TOTAL	\$ 500,000

¹ Costs estimated assuming 20 focus groups

² Participant costs include recruiting, incentives, and travel costs

³ Administration costs include facility, tech, materials, translation and moderation costs

CAR SHARE PILOT						
Administration Annually		Years Offered	2026	2027	2028	2029
CET FTEs	0.5	# of Target Sites	1	2	3	4
Annual CET Rate	\$ 150,000	Cost/ year	\$ 96,200	\$ 101,200	\$ 106,200	\$ 111,200
Solutions Marketing FTEs	0.1					
Solutions Marketing Rate	\$ 162,000					
FTE Support	\$ 91,200					
Participant Incentives per site						
\$100 e-wallet for first 50 users	\$ 100					
# of participants	50					
Total e-Wallet Cost/site	\$ 5,000					
CAR SHARE PILOT TOTAL	\$ 415,000					

CBO EV ADVANCEMENT FUNDS	
Value of each Fund	\$ 25,000
# of Funding Opportunities offered/ year	5
Subtotal	\$ 125,000
# of Years Initiative Conducted	4
CBO EV ADVANCEMENT FUNDS TOTAL	\$ 500,000

CBO PARTNERSHIP FOR AB 841 PC POST-ENERGIZATION ME&O		
Average Cost per Event	\$ 50,000	
	# Events	Cost/ Year
# of Events Conducted in 2023	2	\$ 100,000
# of Events Conducted in 2024	2	\$ 100,000
# of Events Conducted in 2025	2	\$ 100,000
# of Events Conducted in 2026	4	\$ 200,000
# of Events Conducted in 2027	8	\$ 400,000
# of Events Conducted in 2028	12	\$ 600,000
# of Events Conducted in 2029	14	\$ 700,000
CBO PARTNERSHIP FOR AB 841 PC POST-ENERGIZATION ME&O TOTAL		\$ 2,200,000

**Pacific Gas and Electric's Response to Cal Advocates Data
Request ElectricVehicleCharge2_DR_CalAdvocates_001,
Question 3(b)**

UTILIZE A PROGRAM SPECIFIC INFRASTRUCTURE OR EXPENDITURE REQUIREMENT OF AT LEAST 50 PERCENT FOR CUSTOMERS LOCATED IN UNDERSERVED COMMUNITIES (AB 841 PCs) (\$M's After Escalation & Contingency - If Applicable)		
DESCRIPTION		
<u>Numerator (in Underserved Communities - AB 841 PCs only)</u>		
Capital - BTM Project + PM Capital Costs	\$ 90.17	[1]
Capital - BTM Project + PM Capital Contingency Costs	5.72	[2]
Expense - Equity Initiatives	4.48	[3]
Expense - Customer-Owned, Rebate	36.51	[4]
Expense - Customer-Owned, O&M Rebate	0.01	[5]
Expense - Utility-Owned, O&M	1.43	[6]
NUMERATOR TOTAL	\$ 138.33	
<u>Denominator</u>		
Capital - BTM Project + PM Capital Costs	\$ 90.17	[1]
Capital - BTM Project + PM Capital Contingency Costs	5.72	[2]
Expense - Equity Initiatives	4.48	[3]
Expense - Customer-Owned, Rebate	126.47	[7]
Expense - Customer-Owned, O&M Rebate	0.01	[5]
Expense - Utility-Owned, O&M	1.43	[6]
DENOMINATOR TOTAL	\$ 228.28	
EXPENDITURE FOR CUSTOMERS LOCATED IN UNDERSERVED COMMUNITIES (AB 841 PCs)	61%	

Notes

[1] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-1 - Capital' tab, cell J10

[2] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-1 - Capital' tab, cell J11

[3] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-3 - Expense Detail' tab, cell J13

[4] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, 'Ch. 7 - Exp Proj Costs' tab, sum of cells J16-J19

[5] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-3 - Expense Detail' tab, cell J12

[6] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-3 - Expense Detail' tab, cell J13

[7] = ElectricVehicleCharge2_Other-Doc_PGE_20211118_678697Atch02_678699.xlsx, Table 7-3 - Expense Detail' tab, cell J11